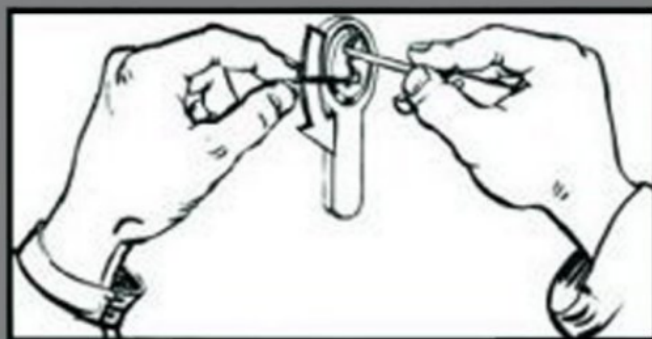


Michael Bübl

CLASSIC

OPEN THE DOOR

**A Manual to Unlocking
Doors and Locks**



THE ULTIMATIVE **DIY LOCKSMITH GUIDE**

www.geheimwissen.at

Open The Door

CLASSIC

The ultimate Locksmith Guide

A Manual to Unlocking Doors and Locks

Author: Michael Bübl – **Master Locksmith**

Imprint

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About the Author



Michael Bübl

He is also known as “the man with the golden hands” and has worked as a locksmith since 1986. He worked for fitting and installation companies with security locks, safety doors, and mainly for locksmiths. In addition to working, he furthered his education and completed three Master craftsman certificates (master locksmith, master smith, and master mechanic). With his education, he opened his own locksmith company in 1990. During this time, he unlocked everything that can possibly be locked. Everything from A to Z, Cash boxes, coin machines, old cars, new cars, safes, and closets, but above all apartments and houses. Whisker locks to magnet locks. He researched steadfastly, in order to improve and expand his knowledge of locks and improved and invented the many tools used by locksmiths. He also deals with technical criminal investigations of locks. Meanwhile he is the leading specialist in the technical aspects of locks and security systems. For many years, he wrote down descriptions and has now published them in various books.

Michael Bübl writes columns and short essays for various magazines

and publications.

He is an activist and supporter of many Animal welfare agencies.

He also works as a security advisor.

More:

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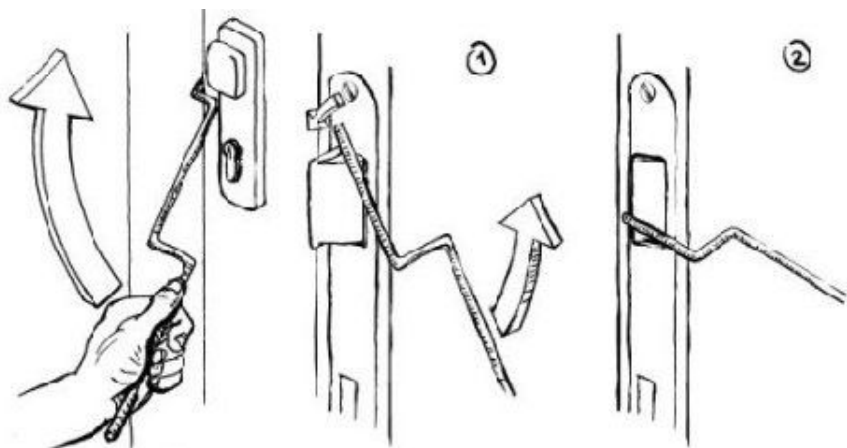
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MY
BEST TRICK!



①





Warning

All attempts to misuse this information are punishable. Do not open a lock which you are not allowed to, and do not break into another person's property. It is wrong and illegal. You will become a criminal through such an act, and must pay fines and damage fees, and could possibly go to jail. The people against whom you have committed the act will make you unhappy. And it is dishonest!

Breaking open locks is a wonderful thing and the knowledge of how to do so need not be put to use for criminal activity. To unlock doors is fun and you can, if you want to, make a living from it. Many people will be willing to pay for you to open their cars or apartments when they have forgotten or lost the correct key. For a criminal, it would only be possible to "earn" a fraction of the amount that a successful locksmith could.

If you like to unlock cars, than you could work for a breakdown service or for a towing company, or offer such a company a partnership and work independently. Don't be shy about asking caretaking companies, sentries, or other institutions. These companies are always hiring part-time or even full-time employees.

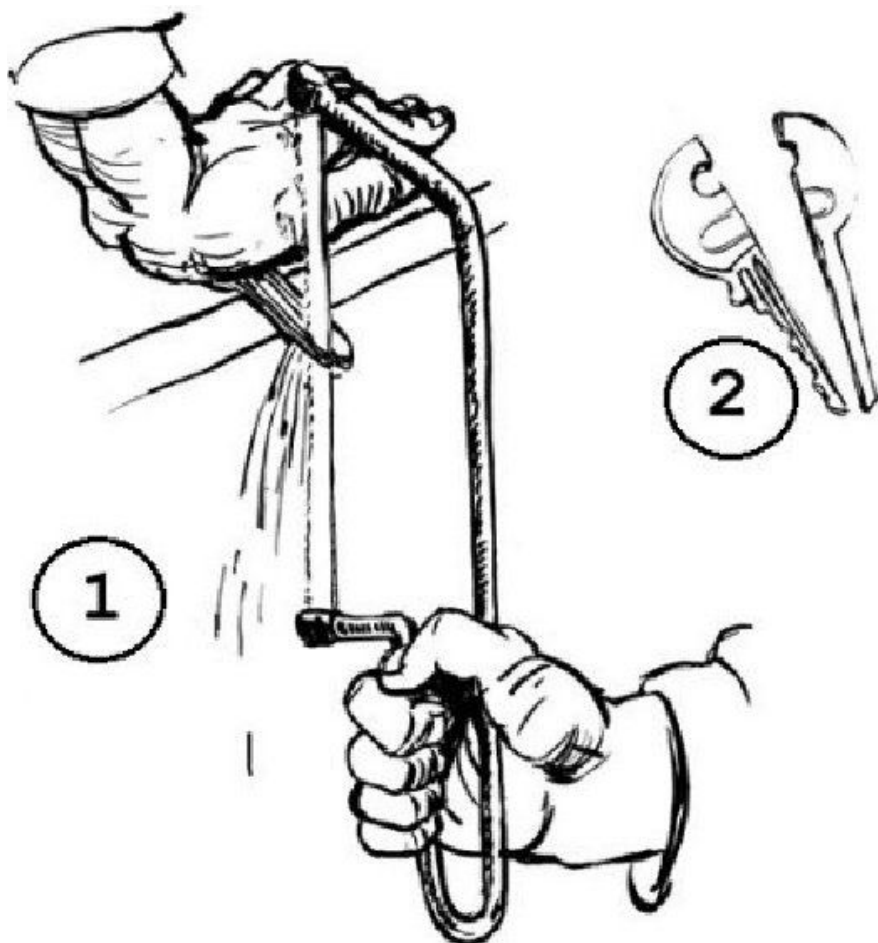
The large department stores also mostly offer an auto unlocking service for customers who have been locked out of their cars as part of their safety forces. Many locksmiths or lock and key services look for holiday or evening employees for their companies. That is just a small fraction of the possibilities that are available with such an education. Legal work has no disadvantages, as opposed to illegal.

A successful locksmith is awarded much prestige from society and the public. They are a member of a chamber of craftsmen and the most are well-liked. As a criminal, you will be ostracized and shunned. If you commit a crime, you will be persecuted, fined, and have slim chances of finding a job in the professional workplace. You have complicated your own life, especially when you possess the same qualities as a respectable specialist.

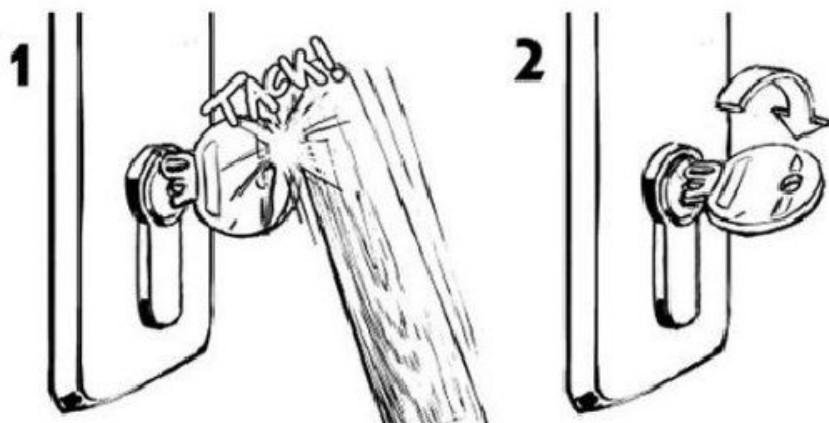
Stealing often causes graver consequences than one even realizes. In every item there is work time which the owner had invested in order to make the money to purchase it. Time is very expensive, and can never be recovered. Therefore, with every theft, you take life time away, and that is unethical. In order to compensate for the stolen item, the victim must give up other plans that were likely underway.

This sum will likely be taken from funds used for food, retirement, or children's education.

Therefore is crime inexcusable and deserving of strict punishment.



BUMP KEY - POWER KEY



Important Hints

Before reading on or beginning to practice, read this section. This chapter contains important information that will save you time and damage. One can avoid many mistakes when one is aware of the pitfalls and thinks ahead.

Make it a habit to check and make sure you have your key every time you leave your apartment or car. A look in your hand to see if what you have is really your key costs no money or time. A quick feel in your bag for insurance can save you a load of unpleasantness. Handle yourself sensibly, not senselessly, as you leave. Better to check one too many times as one too few.

Despite all caution, it sometimes happens that you are locked out and stand before a locked door. It is most important in such a situation to remain composed. Hectic and hysterical behavior will not help the situation, and likely make it even worse. Go around the house and check every door and cellar entrance. Look for open windows. Look in every bag and all possible places. Sometimes one forgets they have an extra key in a flowerpot or under a rock. Perhaps you can get an extra key from your workplace or a friend. Despite the fact that it is difficult to concentrate under stress, it is important to keep things in perspective. It's not embarrassing when you are locked out, and therefore you should feel no shame in asking the caretaker or cleaning service for assistance. Some property managers hold an extra key for their residents. In many cases, it is also reasonable to inform your partner and wait until he/she comes home.

To unlock one's car is often a small thing that driver clubs offer as emergency service for their members. Most insurances which offer policies containing a towing clause cover the costs for a locksmith, though you may have to pay then and be reimbursed later. Many car manufacturers also have a mobility guarantee, under which locksmith's services are often covered.

Work through all possibilities before beginning to manually unlock a lock. A lock is destroyed quicker than you can imagine. A taxi ride to pick up a key costs less money and time than repairing or replacing a lock.

It is only intelligent to open a lock with tools rather than the correct key when you are certain that you are in a real emergency without any other option.

Your success with opening locks or with bypassing the mechanics depends on different factors, of which the most important is your skill in this field. The majority of methods illustrated in this book are simple to understand, but you must also be able to diagnose the lock and door to determine which technique to apply. It is easier to explain the steps on paper than it is to successfully execute them in a real-life situation. It is essential that you practice first in peace and calm in order to be level-headed and successful in an emergency situation. There are always unforeseen obstacles which you must work through in order to learn from. You can't get the feeling for the knack of locks or their specific characteristics just by reading the theory behind them. A short look through this book won't make anyone a lock-master. A specialist is only formed by a combination of theoretical knowledge and practical experience.

It is sometimes necessary to move a tool in a tight work spot, between a door and frame, for example, or in a similar place. Sometimes it happens that the tool will jam or grind. In such a situation, it is necessary to use tool helpers to keep the tools in good condition or to make opening altogether possible. One of these tool helpers is oil, or WD-40, to reduce friction, or perhaps a wooden wedge to force into the door crack in order to get more space to work. It requires strength and guts to physically force the door in, but when there is no threat of breaking something, do it! (With feeling, however)

Regarding the lock, however, you may not use any strength. You don't need to stress the lock any more than it is used to. One should be particularly careful with the opening of vehicles to avoid twisting the lock gears or disconnecting the wires, because that will impact the lock's ability to function.

Only use proper tools of the highest possible quality while working. That has a direct effect on your chances of success. Consider the different possibilities of opening the door, taking your experience into consideration, then select a method and employ the corresponding tools. With bad or rusting tools, you risk doing damage. This doesn't mean however, that you must buy expensive equipment. With some handiwork skill, one can create one's own tools, even with things that one can find in that time and place or easily create.

The hardest job is to find the correct way; the wrong choice of method is most frequently responsible for failure.

Every problem has its special answer. When you know more than one possibility of opening the lock, you must decide for the best; incorrect handling of the lock could destroy it without opening it.

Locks were created to keep unauthorized people out of an area, therefore one can understand why the manufacturers created something which, when met with a crowbar or too much strength, has an inner part which breaks and blocks the mechanism allowing entry. The problem will only become worse with brutal methods. The movable part of a lock must always remain movable.

Stay intuitive while working and pay attention to how the lock reacts. When you think you won't accomplish anything more doing something, change your approach – this will at best avoid damages, and it could increase your chances for success.

The majority of the techniques described here were tested through many years of trial and error by the author, himself an experienced locksmith. They do not claim to be foolproof or a complete collection of the methods of opening every type of lock. Remain open to your own ideas or suggestions from other sources; use the knowledge in this book as inspiration. Do not hold inflexibly to the recommendations posed here; perhaps you could modify some ideas or combine them with your own methods. Success demands flexibility in order to be effective.

Every person who has, for example, tried to pull open a door which had a sign “PUSH” on it can understand why a wrong way can lead to failure. In order to avoid such mistakes, prepare yourself mentally with ingenuity, skill, and intuition before beginning to work. Examine the big picture, go over all the tools at your disposal, (in emergency those which you have jury-rigged) and go through all your thoughts in your head before beginning in peace and with clarity of mind. Consider it a challenge.

Many people are afraid of doing things that they can't do, or they are quickly frustrated. The quality that makes one a professional is that of a higher threshold of frustration. Avoid rushing when trying to open locks. If you succeed in less than 5 minutes, that's wonderful; during your beginner phase you will likely need more time and should accept this. Only experienced locksmiths will be able to unlock almost every door quickly, something which lies in the exact familiarity with the material and many years of daily practice. There is, however, dear reader, no need to rush to unlock your door or vehicle. The important thing is to get back into your house or car without causing damage, not in the shortest amount of time. Never put yourself under time pressure; it is not a race.

Despite the many possible ways to open a door, it is not a given that every method will work on every door. Sometimes there appears to be a small detail, like a very tight workspace, which acts as a real barrier and forces you to change your thinking.

You will also find that you won't succeed the first time, but rather by the tenth. Patience and perseverance are qualities that every locksmith must have. Make a note of every failed attempt and why it failed in order to learn from your mistakes and not make them in the future. With time, you will get more experience as well as a better feel for lock opening. As with so many parts of daily life, the mental state counts as well. If you think you can succeed, then you will.

Don't brag about your skills with unlocking locks. Don't show anyone what you can do – that is the best way to bring yourself difficulties. If you wish to unlock your own house or apartment, you only need to decide which method to use, and it doesn't matter whether it works on the first try or the fourth. When you have an observer, it is a very different situation. People don't realize the difficulties that you must battle, and when the door doesn't open after a few minutes, they immediately think that you are inept and don't know what you're doing. This misunderstanding affects you more than you realize. You will break under pressure, become nervous, and rather than “fighting” against the door, you will be trying to save your honor. Your chances of success will sink to practically none.

Be careful with time estimates for unlocking locks. Tell your audience that you can accomplish your task in half the time if you are aware of the exact type of door and lock construction. However, there are factors which make it impossible to give an exact time guarantee. A small area between lock and door frame or feeble wire can bring the sweat to your brow and cause the time to fly. When you decide to budge the door in order to enlarge the work space, you might even see the opening mechanism. As a rule, however, that is not good. When you aren't 100% certain of the type of door or lock, carefully try other possibilities, perhaps moving the level or latch. Correct estimations will help you greatly. You will notice very quickly which way is incorrect.

Even with very easy doors which can be opened in seconds, there are often complications which require time.

Clarify to people exactly what you will do before you do it. Tell them of the problems which could possibly appear. They will understand and not be angered or annoyed by them. This will establish a good climate for working, which is no disadvantage.

There will also be people who simply will not stop nagging and criticizing. If you encounter such a person, and cannot convince them to have the proper respect, then don't be shy about sending them away. Tell them that you work better alone, when no one is watching, and that you require time because the first priority isn't speed, but the

safe unlocking of the apartment or car without damage. It also doesn't interest you if this annoyance knows someone that can open every door in the world in one minute, except that perhaps you could learn a new technique from this magician.

When you've had success with a method and opened the door with it, don't push your luck by showing all your tricks. Of course there are many ways to unlock a car, but one way is always the best. You could bring yourself unnecessary difficulties with your bragging, in that you could be careless and break a tool or jam it. That is certainly not desirable.

Don't tell everyone!

It's not good if too many people know about your skills. Some people suffer from persecution complexes, or are made easily nervous. Such people will create stories about you and think only about the criminal possibilities. Understandably, the story will be elaborated to appear believable and they will even possibly report you to the police. Such false accusations can really cause you difficulties. Never forget: ***People gossip!*** When you show someone a lock trick, they will be impressed and tell of this "hot news" to another. In this way, everyone in the neighborhood will hear of you, but in a changed form. By the third or fourth gossip, they can swear that they saw you break in. A game of "Telephone".

The conjecture that you will make it impossible for others to use your skill against you is quickly said, but not necessarily advantageous to your reputation. Through all these circumstances, your reputation will suffer and certain neighbors will make a bad image of you. You will be the first they think of when someone is a victim of a break-in in the neighborhood.

Unfortunately, there are criminals in our society. These people get wind of your skills the fastest and try to contact you. Never get involved with these people and avoid their company unless you want to land in jail. It is forbidden to plan an illegal activity, or to have knowledge of one!

In some countries, it is illegally to own locksmith's tools. Inform yourself of the specific laws in your country. It is also not necessary to own specific "break-in tools" in order to unlock doors. In this book, there is an entire chapter devoted to the explanation of self-made tools. In smaller emergencies, you often need nothing other than a small piece of wire and pliers. With a little luck, you'll find some usable utensils in your environment.

Practice Makes Perfect

Start out with a dry run. You should begin practicing on an open door with a simple lock. If you can have a friend in the apartment to open the door in case of emergency, you will certainly appreciate it. Go step by step, and begin only when you have read and understood everything. To learn as efficiently as possible, pay attention and note what you feel. When you reach an impasse, take a break and continue later or the next day. Be persistent, but not bull-headed. It doesn't accomplish anything if you use the same trick over and over and it doesn't want to work. You can cheat a little and remove some of the larger obstacles if you feel that it doesn't deny you the overall success. You should only move to more complicated locks after succeeding with the simpler ones. Look for a door with a large space between lock and door frame and begin on this for your first attempt. Simply try to snap this door open.

Please don't despair if it doesn't work the first time – that is only evidence that your lock is doing what it's supposed to!

It's always a good feeling to open a locked door. That is the evidence that one understood the entire puzzle and found the correct method, as well as cleared all obstacles out of the way. However, there are situations which appear, for reasons that are unclear, which have no method which will lead to success. Consider the chosen method once more, check over the tools (if uncertain, begin anew), attempt to call to mind an earlier problem that was similar, and use your experience. Often it is something small which makes the difference, and it will work if you simply lay the safety catch wire from above, rather from under, the door crack.

Fundamentally, one must differentiate between “Picking” and “Bypass” methods. Bypass refers to all methods which skip over the lock and move directly to the locking mechanism. These techniques are simpler and easier to learn, and are very effective.

It is a little different with Picking. You will quickly understand how it functions, but without regular practice, you will find it impossible to succeed with.

It is also not important to be able to open every type of lock or vehicle. It is enough to be able to open the doors to your own apartment and vehicle, unless you wish to make a career of this, because there are simply too many types of locks to be able to open them all.

As soon as the door is open, put your foot in the door and grab your

key.

Nothing is more terrible than having to unlock the same door twice simply because it closed over again due to carelessness. This happens much more often than you would think. When this happens, you must begin all over from the beginning, with a large load of frustration, which you likely have no interest in doing again. Whether it will work once again is questionable. As your next step, see whether or not the lock will lock once again, but while leaving the door open, so that if you are successful, you will not be left standing outside your apartment.

It is possible that your apartment is so safe that you are simply not in the position to open the door without a key. That is not an indicator of your handy skills, but rather a gauge of a safe door.

In this case, you must either be particularly careful, or give an extra key to a friend. Another option is to find a good hiding place. But remember: A hiding place is only effective when no one knows about it. Extra keys must be deposited so that they are easily accessible. A note in your glove compartment reminding you of the location of your extra key is absolutely pointless.

After the possible usage of this extra key, return it immediately to its place. Attach a keychain to it with the words "Extra" or "Return to place" on it; this will help you immensely to then actually do this.

If nothing works and you are still locked out, then don't hesitate to call a professional locksmith. Tell the specialist what you have already attempted and ask whether you have damaged the lock. You don't need to feel embarrassed, but it makes the specialist's work easier.

If you become a good locksmith, you will be able to open many doors, but you are not allowed to do so. Don't use this skill without the right to do so and remain honest!

A Short Look at History

The wish to keep unauthorized people out of certain rooms has existed since the beginning of human thought. The Egyptians used the first locks 7000 years ago. In terms of their function, they were astoundingly similar to our cylinder keys of today. The locks were likely made out of wood, though this remains unconfirmed. At any rate, the few examples we possess today weren't made out of anything else. The keys were also made out of wood, or out of bones.

With Egyptian locks, the entire mechanism was attached to the outside of the door.

The first metal locks appeared 4500 years ago, in the Age of Bronze. This metal lock was attached on the inner side of the door, and allowed itself to be unlocked through a hole, "the keyhole", by a bronze key.

Invention continued with the Greek lock, which appeared in 500 B.C. For the first time, the key had to be turned in order to free the bolt.

The Romans created a metal lock out of brass and bronze over 2100 years ago. This model was the first use of the flat spring, which allowed the locking bolt to move. This was the first real mechanic system.

The next important step was the discovery of the self-activating "snap lock" in the early Middle Ages, around 1000-1200 A.D. Various types of keys, like the Cross key, were also discovered.

The locksmith's craft, and thereby exactness, steadily improved over the next centuries. The locks became more and more beautifully decorated; the various smithy's and iron-workers embossed keys and locks of the various epochs.

The mechanics remained the same, however, until the discovery of the "Chubb Lock" in the year 1818.

The largest innovation was in 1860, when Linus Yale invented the cylinder lock.

The cylinder lock was improved in countless ways over the following decades, until finally an anti – break-in, magnetically coded example was brought onto the market. These new cylinder locks also operate without springs to be even more secure. In combination with increases

in quality and manufacturing skills, this has made these locks nearly immune to technical difficulties.

At the end of this chain of discovery is currently electronics, which have taken the lead of importance since the 1990's. Card and keypad locks have arisen, as well as touch-free electronic gates, as one sees on ski lifts, for example.

The Cylinder Lock

The cylinder lock has been, and still is today, the most commonly used lock, since its discovery by Linus Yale in 1860, whose son followed in his footsteps. The reasons for this are the clear advantages that this system offers. The enormous number of locking possibilities makes this overall one of the safest systems. It was the first lock which separated the spring bolt construction from the locking system. The brought the large advantage of no longer needing a key which would move the heavy bolt itself, allowing it to become smaller and lighter. For the first time, heavy iron wasn't needed to be the material. Also, a variant which was until that point unknown was discovered as well – the locking system.

We have also benefited from standardization in that we can now use parts from various manufacturers in combination with one another. New installations as well as replacements have become easier without affecting security. Modern cylinder locks are superior to almost every other locking system. Another clear factor adding to the cylinder lock's popularity was the ability to mass produce them inexpensively. There are different types of cylinder locks, of which the cylinder lock with pin tumblers is the most popular. Almost 90% of cylinder locks have pins. One can find them practically everywhere. Other tumbler forms are discs or panes.

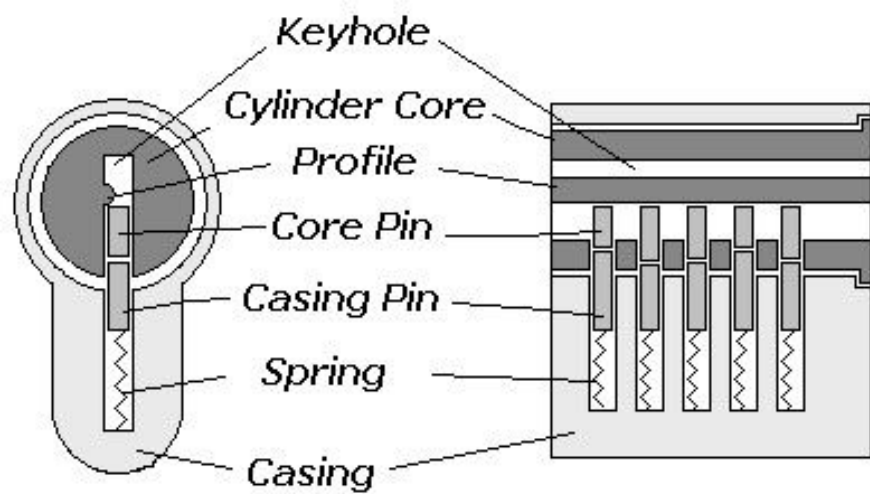
How does a cylinder lock work?

Be curious and research!

It will be some time before you understand all the relationships and workings within a cylinder lock. It will help you get a picture if you can obtain a cylinder lock and examine how each individual part works with one another. Because many of the springs and pins stand under pressure, you may cause these small parts to spring and lose them. You can avoid this by completing this work in a see-through plastic bag. It is also possible for you to purchase a “practice cylinder”. This is a fully-functioning cylinder which is sliced open on one side, allowing you to see its inner workings.

That is the best way to get to know all the different parts.

The method of function is simple but ingenious and the ground principle is the same in every model. Within a small pipe (casing), there is a core (cylinder) which turns. This is then built up into a lock by various pins and springs. When exactly examined, one sees small drilled holes in the cylinder and in the pipe. These lie exactly opposite one another and will be named the pin canals. The upper pin lies in the core and the lower pin in the casing. When there is no key in the lock, the casing pin is pushed from under into the pin canal of the cylinder. In this way, the cylinder is blocked. Only when the correct key is used are all the pins returned to the correct position and the cylinder wall (shear point) is free. The lock can turn.



Exact Assembly:

Keyhole or key passage is the opening on the front side of the lock in which the key will be stuck.

The protrusions left and right in the key hole are called profiles. These must match the grooves of the key. Through this qualification, the majority of keys are rendered inappropriate. An important initial elimination is thereby achieved.

The inner core turns and is called the cylinder. The lock is named for this part.

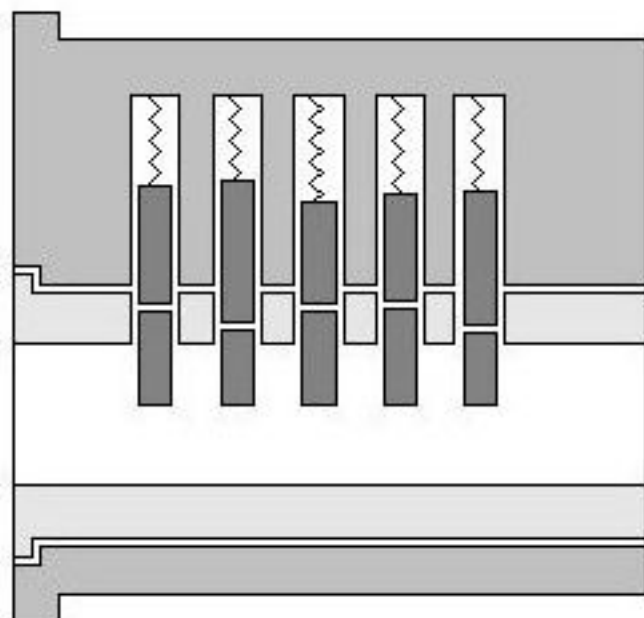
The outer part is fixed in place and doesn't move. It is called the casing and the cylinder turns inside of it.

The pin canal is the hole in which a spring, an upper pin and a lower pin (taken out by the locking system) work. The pin canal is set up in such a way that the drilled hole in the cylinder and that of the casing pin lie nearly exactly opposite one another. But just nearly. Through this minute difference, it is possible to lock the door repeatedly.

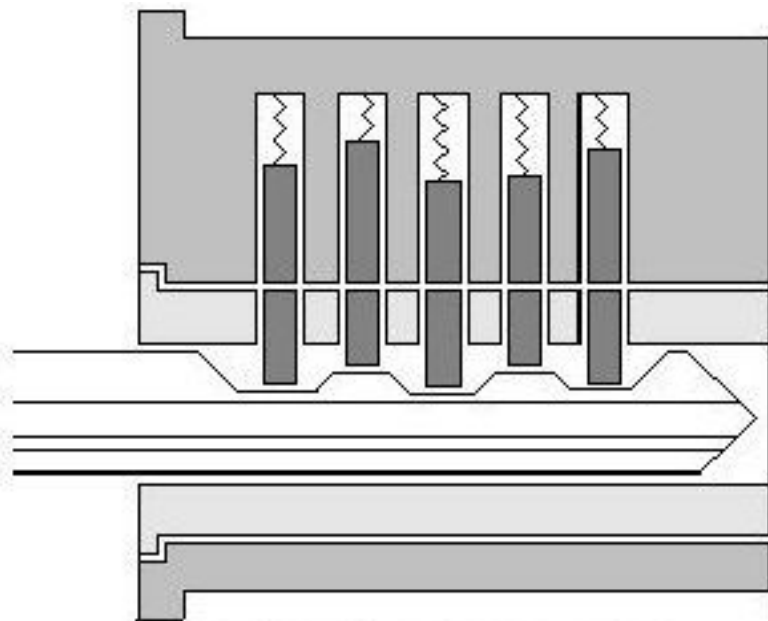
The first of the cylinder pins (upper pin) is visible without dismantling the lock, if you look through the key hole in the front. The visible end is often pointed in order to allow the entry of the key indentations. When the depth of the indentations matches the length of the cylinder pins, the passage is cleared and the lock is opened.

The casing pins are hidden and invisible from outside. They will be pushed from under by pin springs towards the cylinder pins, and in non-operative state, will line up with the cylinder pins and block the passage. In this way, the rotation of the cylinder without the proper key is hindered.

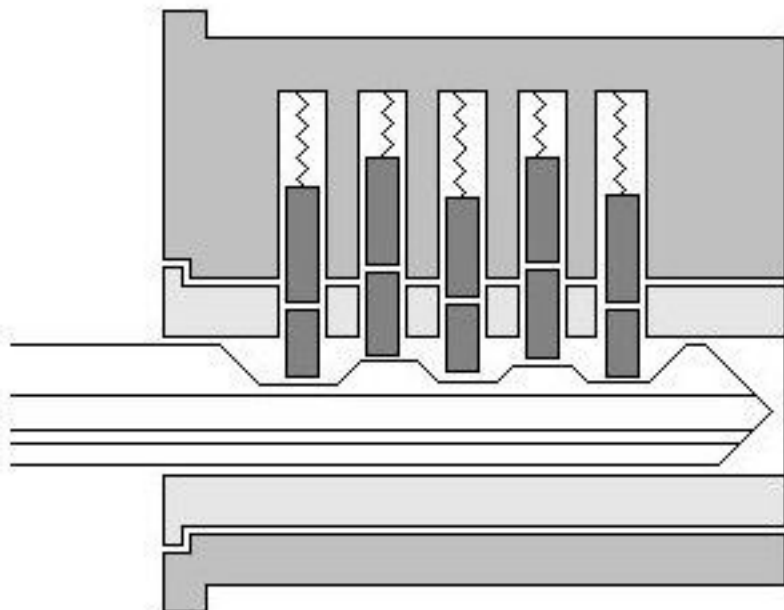
In order to prevent the cylinder from being removed from the casing when the cylinder wall is free, the cylinder is secured by a splint or retainer preventing removal.



Cylinder lock without key



Cylinder lock with
the correct key



Cylinder lock with
the wrong key

Required Qualities

With the information given here, you will probably be able to open some locks. But for those wanting to become a master, there is a large part still missing. The largest obstacle is the motor activity which you must control, however it is important not to underestimate the psychological side. High concentration abilities and the gift of creating visual pictures are unconditionally important for finessing the small marvels. Also, constant readiness to learn more and a good dose of patience will never be disadvantages for this work.

Use Your Senses

Don't be afraid of using all of your senses to reach your goal. Your ears are your most important informants after your sense of touch. Concentrate on the sound of the lock. You will soon be able to unmistakably distinguish when the pins catch. Your sense of smell can provide information like, for example, whether a lock is freshly oiled. However, your fingers must tell you the majority of information. A perfect sense of touch is the most important for a locksmith. You will depend on this sense the most.

Sense of sight is mostly overrated with locksmiths and rarely helps to open locks. In general, you should visually dissect locks only at the beginning, or to note conspicuous features, like rust.

There is, however, an internal eye. It will especially behoove you to increase this skill if you wish to reach a high level of expertise. Make an internal picture of the workings in the lock. You will learn to pick locks with your eyes closed or in complete darkness, and even achieve better results as with direct eye contact. Set up a projection and pay attention to every movement within the cylinder inside you. It is only with this quality and with concentration that you will become a specialist.

Mechanic and Motor Activity

Beginners to the art of lock picking later say that they had never known how many feelings they could sense with their fingers. They were downright “deaf” before, and after only a few months, their fingers could hear.

With time, the sensitivity of your hands will also increase. You will feel the smallest details and feedback from the pins and be able to interpret them.

You have to work consciously and diligently on yourself in order to improve your mechanical abilities. It is very difficult to use a pick correctly and only push as much as necessary when one is beginning with no previous experience. It will cost much labor to maintain the exact same pressure within the cylinder with a tool despite the fact that you are springing from pin to pin, or to hold a pick exactly on position over a cylinder spring while the pressure of the rotation marginally changes and with that, presses the pin to the shear line.

You can certainly imagine what high expectations are required of your hands.

Procedure:

In this chapter, there are some exercises and hints to make the way easier.

Practice locks:

Obtain a collection of locks from various manufacturers and price classes so that you can get a lot of practice. A sliced open practice cylinder, already mentioned in this chapter, is very helpful for

obtaining your beginning visual support. Something which will really help you learn is a special instrument called a “Beginner’s Cylinder.” It is a standard cylinder lock with all but two pin pairs already picked. The two which remain are entirely arbitrary. This modified lock is a perfect model on which to make your first attempts. It is clearly easier at the beginning to concentrate only on two sets of pins rather than on five. With increasing accuracy and perfection, you can raise the level of difficulty yourself by adding more sets of pins or by changing the positions of the pin pairs.

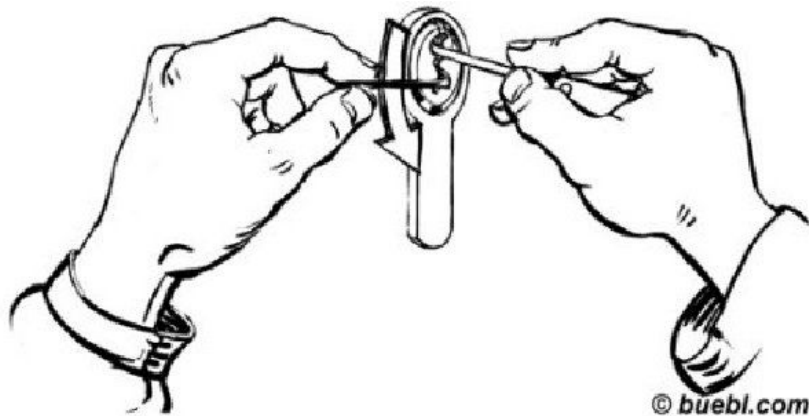
Breaks:

Allow yourself to take regular breaks and complete relaxation exercises. If you have the feeling that you are not going anywhere or making any progress in the learning process, then stop. You should only continue when you are once again completely able to concentrate. No one is in a rush and you won’t gain anything from it anyway.

Handling of Tools:

Some technicians hold the pick like a knife at the dinner table, letting in on the pointer finger and middle finger, which take over pushing and feeling. Others prefer to hold it similar to a pen while writing, between the thumb and pointer finger. The fingers remain stiff and the wrist is the pivot point. The fingers are responsible for feeling. Test out a few different methods to see which is suited best for you and which will avoid cramping and tension the most. Perhaps you will discover your own style, one which is not described here. There are some locksmiths who hold the picking tools like chopsticks and are very good.

The way for you to most effectively hold your tools is something which you ultimately must discover yourself.



Exercises:

Before jumping into your first cylinder lock, it is recommended to complete a few exercises first.

From Pin to Pin:

Take a cylinder and move a pick (pick or diamond) from back to front over the pins. Do you feel how the pick bounces off of the pins? Pull the tool out slowly from the key passage and pay attention to each pin.

Number of Pins:

Same starting position as with the above exercise. This time pay attention to the clicks as the pick leaves the pins and they snap back to their original position. Count the exact number of pins.

Spring strength:

This is the hardest exercise.

First bring the rake into the cylinder and position it exactly over a pin. When you push the pin under, the spring will in turn push the pin upwards. This resistance is variable and will become fractionally stronger as the spring is pushed further together. Try to feel this difference.

Now take the flat side of the tool and repeat the exercise. But this

time, instead of beginning with an arbitrarily chosen set of pins, begin with the first. For the next set, use the second set, and so on, until all of the pins are pushed under at the same time. You are now feeling the maximum expected spring strength.

Opened Locks:

Continue with the tools from the last to the first pin with a small change. This time, complete the exercise with a lock which has already been picked (lock which was opened without a key). This means that the pins can't return to their original position due to pressure from the pick. Pay attention to how you hold your tools in your hand during these changes, but ultimately concentrate on the point of the pick and not your grip.

If you can complete this exercise quickly, you will hear a wonderful sound, a type of click. Listen to this exactly, as this sound will help you identify a seated pin.

Pure Tension:

Insert the tension wrench and finesse the cylinder into turning. Do this with all the possible locks that are at your disposal. You will note that the resilience of cylinders will vary. Old or rusted cylinders sometimes require a large amount of pressure to force the cylinder to rotate. Some cylinders may even remain in a slanted position. This could have very negative effects on your success rate.

This exercise will clearly show you the differences.

Tension with Pins:

Insert the tension wrench and push a pin downwards. Rotate a little and try to hold the pin under in place. You will thereby get the feeling of how much (or how little) pressure you need to give with the tension wrench in order to hold down a pin.

Increase the number of compressed pins and pay attention to the increase in pressure necessary to hold the pins down.

Mental:

In order to become a good technician, you must also train your mental side.

There was an experiment completed which demonstrates that one doesn't need a typewriter to learn how to type. A scientist allowed a group of test subjects practice daily a certain amount of time on a

typewriter. Another group completed the same typing training without a typewriter. The students of the second group simply imagined typing. The results were astounding – both groups were identically good at the end of the experiment.

Athletes and artists work hard on this technique as well.

If you wish to be a good locksmith, you must also train mentally. It is certainly not easy and requires a large amount of discipline, but the results will convince you.

Imagine your exact approach – from the application of the tension wrench to the holding down of the last pin. Make a picture of every detail. Spiritually move step by step through the process. It helps when you can create an imaginary film which plays for your inner eye in which you are the director. Watch this film as often as possible and pay attention to each small detail.

Vulnerability of a Lock

Or: Why can one open a cylinder lock?

In order to pick a lock, it must have a defect. It is not an error exactly, but rather a deviance of 100th or even 1000th of a millimeter. This inexactness is a consequence of production and appears in each lock. The repeated locking of a lock is the only advantage of this defect. With the heightening quality of production, the tolerance directly decreases and picking the lock will grow increasingly difficult, but theoretically the possibility will always remain. To be fair, one must confess that there are locks which absolutely do not allow themselves to be broken into, even by specialists participating in a contest. In the field, it is not likely that you will run into such a unique model, but it is not out of the question.

The following defects allow themselves to be taken advantage of:

Cylinder Movement:

Each cylinder allows itself a few degrees, sometimes only minutes or seconds, in order to rotate. This defect results from the fitting accuracy of the casing pins, which require a certain mass of “air” in order to move. Without this minimal pressure to move, it will not be possible to re-lock the door, because the lock wouldn’t be able to activate any longer.

Sounds:

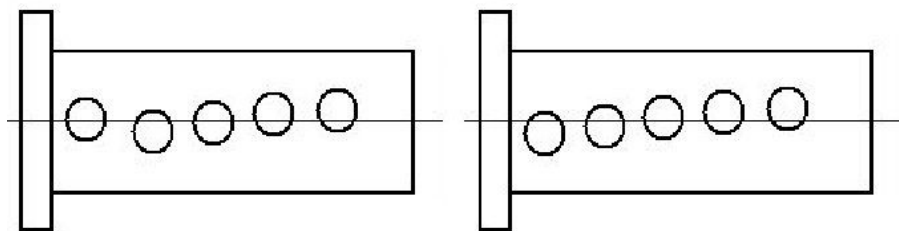
The engaging of pins, discs, or other tumbler types is, by every type of lock, audible. With older locks, this clicking sound is noticeably louder than with more recent models.

Cylinder Air:

The fitting accuracy of the cylinder is never 100% exact. Therefore, there is a minute amount of space between the cylinder and casing. This area is large enough to slip in a very thin piece of sheet metal (Shim) and thereby unlock the lock (Shimming). Unfortunately, this defect is seen increasingly less in newer locks. Being able to take advantage of this error is less and less likely.

Alignment:

The holes for the pin canals are never exactly on the middle axis. They could tilt towards the back (left or right), or in other random directions. This fact decides which pin is in the first “position.” You will see that each cylinder lock has its own picking rhythm.



Exaggerated illustration of
Alignment Errors

Professional technicians, as a rule, don't use all of the weaknesses of a lock in order to open them. Through their experience, most have become accustomed to utilizing one or two which are particularly successful for them. Only when these techniques fail do they move onto others. Such a procedure has the advantage of one or two techniques learned to absolute perfection, thereby making highly difficult locks also possible to open in a short time.

Picking and Raking

In this chapter, the information needed to learn these techniques will be given. The positive is: One can learn how to do this.

Certainly a pre-requisite to this, however, is the understanding of each technical detail and a lot of time spent practicing. Proper picking is only learned after weeks or months of intensive training because it requires a great sensitivity of feeling to know how to proceed. One can receive the important concepts in a weekend seminar, but for your fingers to be ready requires time and practice as with every handiwork. If you really wish to accomplish this perfection, there is no training program which will not require a large amount of discipline from you. Whether you actually want to invest that much time and money in acquiring this skill is a question that only you can answer.

However, it will bring you much joy when you can open a complicated cylinder lock in less than a minute. In order to accomplish this, you need to understand how a key opens a lock and know how a lock reacts when one attempts to open it with tools. It is essential to know each detail of these processes. With lock picking, one takes advantage of the inexact qualities which are present in every lock, because nothing is 100% accurate.

Identification of a Cylinder Lock with Pin Tumblers:

Because most of the cylinder locks used today have pin tumblers, it won't be difficult for you to get to know them. One look in the key hole and it's already clear. You can see the first pin of, at the most, five. The pin tumblers are round and have springs underneath. This means that when you push them down from above, they spring back to their original position. This is a similarity they share with disc tumbler locks, which are, however, rarely used as entry locks.

As it has already been stated, it is essential to know all the functions and details. If you don't have any experience, you will not be able to avoid sitting down and analyzing a lock.

Picking

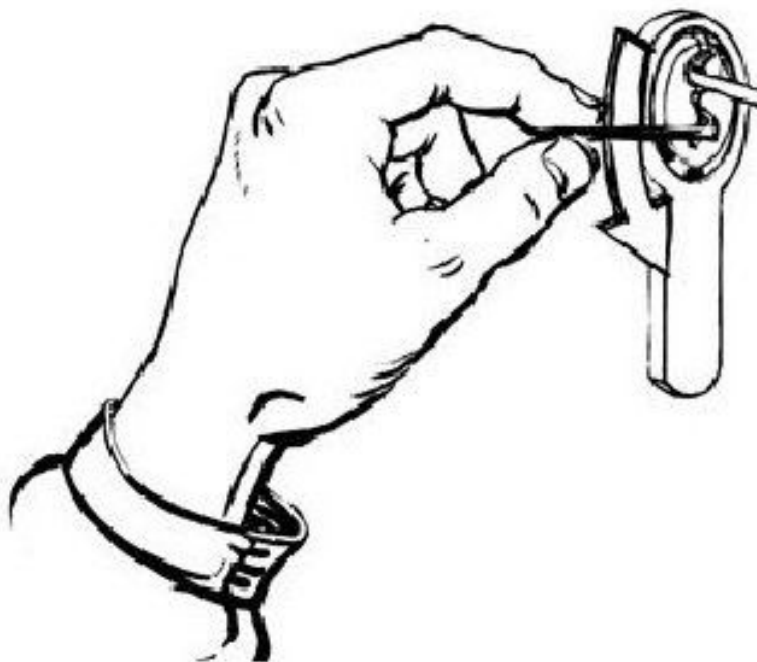
Tension of a Lock:

Correct tension is probably the most important and most difficult aspect of the entire art of picking locks. The entire success is dependant upon this factor. A beginner is only rarely familiar or

accustomed to this detail.

In order create tension in a lock, one uses the space around the cylinder which is always present.

One must exert rotation pressure on the cylinder in order to push the pins together. To this end, the tension wrench is placed in the key hole and pushed against the cylinder.

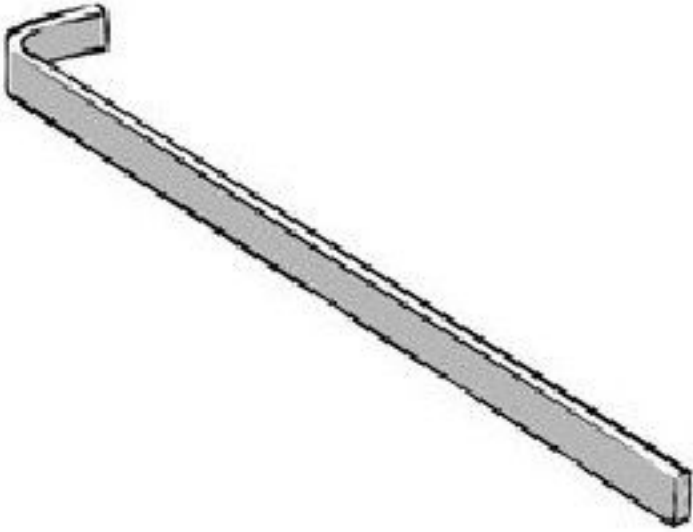


Tension wrench inserted
from below

Whether you apply tension from above or below depends on your personal preference, but should regardless follow certain rules.

Normal cylinders are usually more effectively pressured from below because there are certain advantages to this method. No twisting of the hands is necessary, so they are not tired out as quickly because one can support them correctly. Anyone who has ever hung a curtain understands what is meant here. One must absolutely pay attention to make sure that the pick has enough room to maneuver without touching the tension wrench. This is usually a better situation when the pressure is applied on the cylinder from below. Padlocks, in contrast, are better when pressured from above. However, it is always the case that one can choose based on individual preference or other factors, ex. how much room is there between the lock and door frame,

etc.



A Standard Tension Wrench

Strength of Tension:

The tension should be so finely regulated that the pushed pins catch on the shear line, but don't spring back into the cylinder. Too much tension causes increasing friction of the pins which makes pressure impossible. Correct tension is a question of moderation and feeling.

It is recommended that in the beginning phase that one practices tension explicitly.

A good method to get the right feeling is the following:

Insert the tension wrench in the key hole and apply practically no pressure.

Insert a pick in the key hole and graze over the pin points. With each new attempt, raise the rotation pressure applied to the cylinder minutely and note the reaction of the cylinder and the amount of strength needed to catch the first pin on the shear line. You will be surprised just how small this is. Tension strength is usually overestimated by beginners.

Some factors require a stronger rotation moment:

Padlocks with spring activated cylinders

New and expensive cylinder locks with very little tolerance

Locks which have been exposed to weather or rain

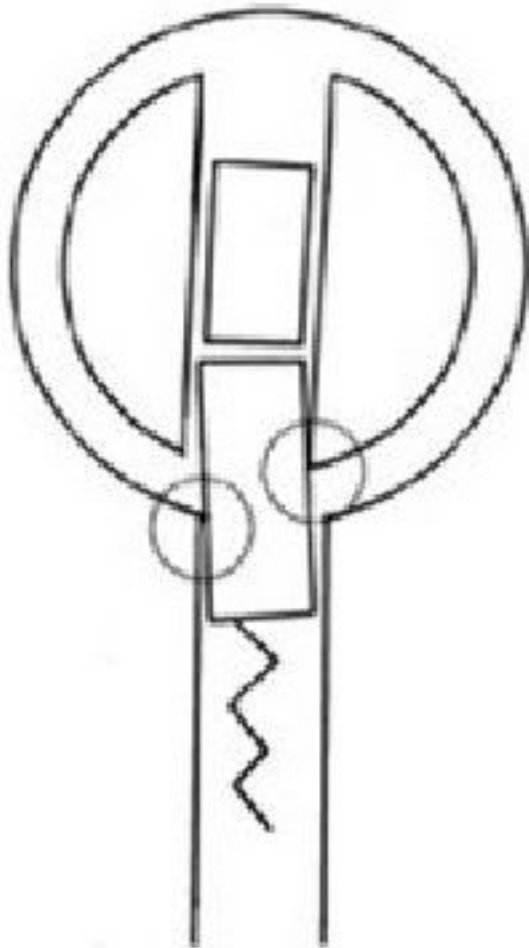
Attention:

A common error is that the tension wrench touches or blocks the first pin. When this happens, feedback to the technician's hand is falsified. Make sure you leave enough distance. This problem, obviously, only exists when the lock is pressured from below. Therefore, with bolt- and padlocks or with all other types within which the first pin lies far forward, one should really pressure from above. A slip of the tension wrench due to tight space can thereby be avoided.

The tension wrench with which the author has had the most success is the rigid tension wrench. It is a tool which you must make yourself. It will not just be inserted in the keyhole, but rather wedged there. This is possible because the point is a little smaller than the entrance of the key hole, and then grows increasingly bigger. Because cylinders have various key holes, they must have their own size wrenches. However, three or four sizes will be sufficient for most common locks. The rigid tension wrench will be inserted in the hole and then wedged in with three or four gentle hammer strokes. The largest advantage of this tool is that the tension pressure can be exactly controlled. The wrench acts like a fine crank.

The various wrenches will be shown later.

The Joining Effect:



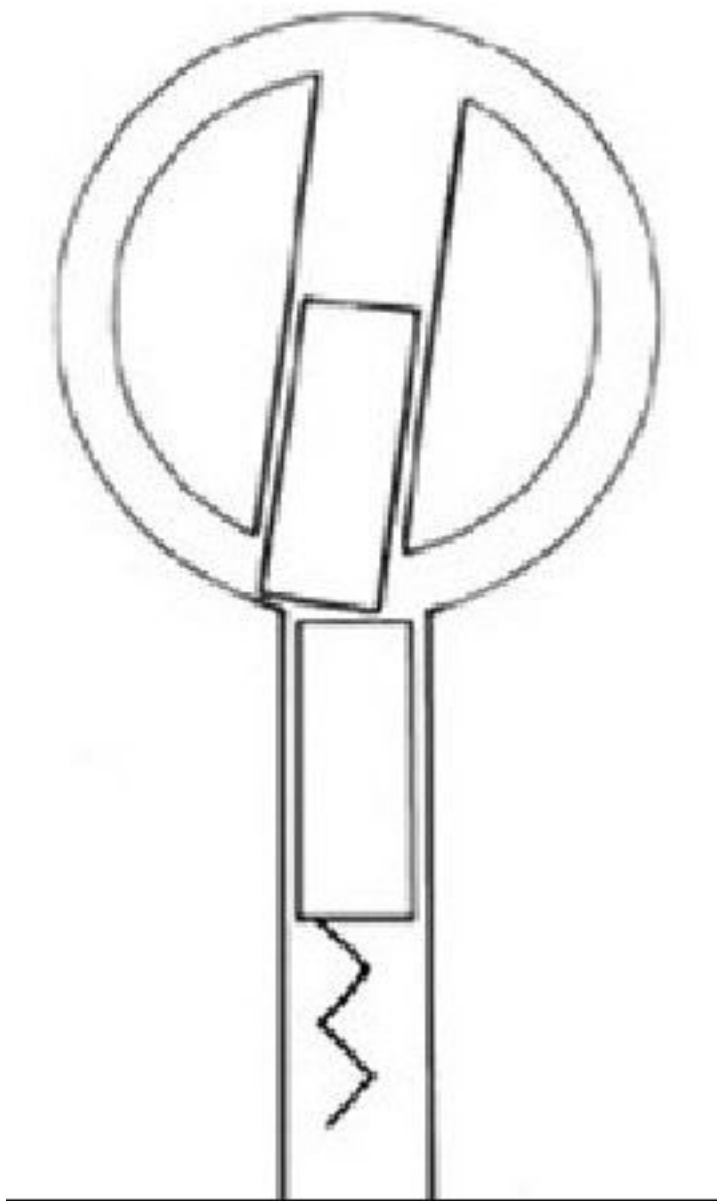
Only through the Joining Effect is it at all possible to open a lock. The pressure of the tension wrench works against the core of the cylinder, causing it to turn until the first casing pin begins to connect with the pin canal.

This is called Joining.

The pin meets at two points: on the lower part of the cylinder and on the upper part of the casing.

In order to get the pins to move with tools, the pressure applied must be greater than the spring resistance and the resulting friction. This is dependant upon the strength of the pressure point which is applied to

the cylinder core.



The required pressure to push a joined pin under remains constant until the deciding moment. The upper part of the casing pin reaches the shear line. Suddenly the friction disappears and the cylinder turns itself a little further.

What happened?

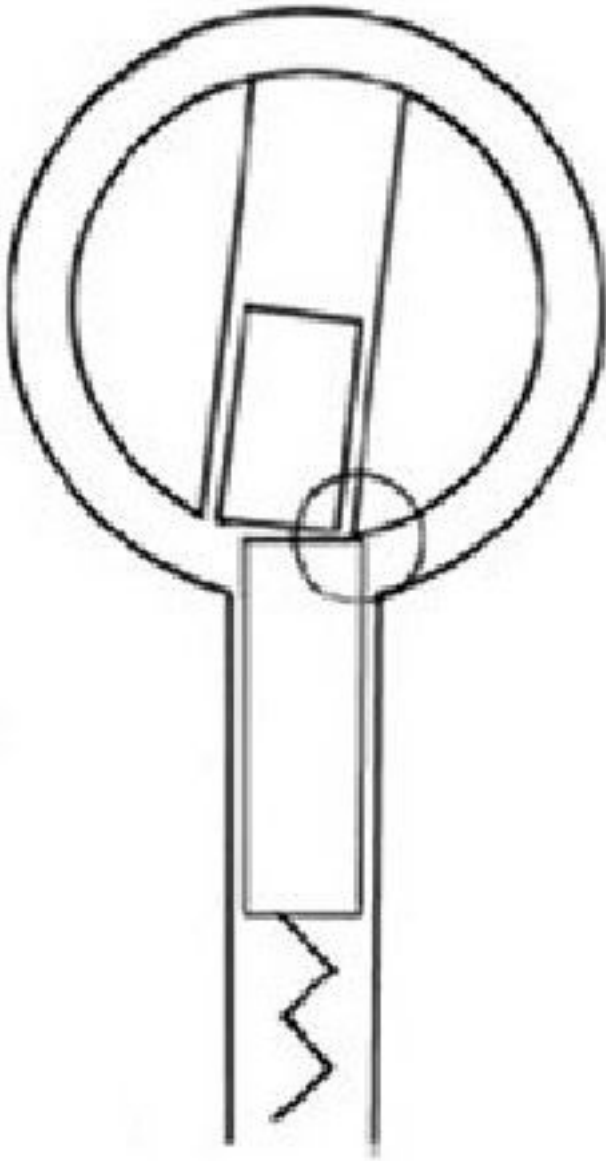
The pin has fallen into position!

One this has happened to all of the pins in the lock, the cylinder wall is completely free and nothing prevents the core from rotating. The lock is open!

This minute rotation movement is naturally clear to feel and creates its own consequences.

The pin canal holes in the casing and in the cylinder core are no longer lying exactly in line with one another.

Now the cylinder pin is sitting on the upper part from the casing and cannot be pressured any further downward. Of course, one can attempt to continue applying pressure, but it will be noticeably harder due to the greatly increased opposing tension.



The casing pin rests on the lower edge of the cylinder wall, making it impossible to spring back into the cylinder, because the spring resilience is less than the resistance caused by the immovable edge. The next pin must now reach this joined status and so on, repeating for each pin.

The joining of each individual pin is possible due to the alignment

defect.

Deformation:

Metal possesses the quality of being able to deform itself in reverse when exposed to a certain amount of pressure. This means that the metal parts of the lock could act like springs if subjected to tension. The pins could become warped, then return to their original form once relieved from pressure. This appears even with the use of small amounts of pressure. For the most part, one can tell the number of joined pins from the pressure. If one rotates more forcefully, two or more pins are joined simultaneously, because the brass can only minimally warp. Therefore, be careful with the amount of tension applied to avoid this situation. The magnitude at which this elastic deformation appears occurs in a very small scope, under one μ (equivalent to 1/1000 of a millimeter).

Clear Signs of a Positioned Pin:

When a pin is engages on the cylinder wall, there is an unmistakable “click” sound which one hears. The pin releases shortly with some pressure from above before it completely succumbs to the pressure from the immovable cylinder core edge and is pushed under.

In addition, the cylinder turns slightly. This movement, however, is not always distinctly felt by the beginner.

If you release the pressure from the tension wrench, the pin springs back into the starting position and you hear a sound. With a little practice, one can even hear how many pins spring back. Unfortunately, the same sound is produced by an incorrectly positioned pin.

A very important sign is that a positioned pin will feel very “hard,” because it rests on the edge. Try often to discern the often minute difference between a correctly positioned, or engaged, pin, and a simply depressed pin by gliding over the pins with a tool. You can feel this difference on the tension wrench.

Take the tool out of the key hole after you believe that you have correctly positioned a pin and maintain the rotation moment. If you shake the lock, you can hear a rattle.

A large step for someone on the way to becoming a locksmith master is being able to discern whether or not they have positioned a pin, and above all, which one.

Every Pin for Itself:

With this technique, much feeling is required, and it is in no way a demonstration of strength.

The highest level of lock picking is to push each pair of pins to the shear line. In order to do this, one uses a rake or half-diamond. In addition, one must maintain light pressure on the cylinder, and then bring one of these two tools into the key hole as well. You are looking for the pin which produces the largest amount of pressure against the pick. When you apply pressure to this pin, you should feel counter-pressure on the tension wrench.

If you have previously decided to use the rigid tension wrench, you can even see this counter-pressure. You're in the position with this tool to work with the functions of the lock mechanism as though it were a see-saw. With increasing pressure on the pick, the wrench turns, and vice versa. Track this movement and diminish the rotation movement once you have increased the tension on the rake or diamond to the extent that the pin has correctly seated and you have heard a click.

With increasing practice, you will be in the position to unlock certain cylinder locks like clockwork. Naturally, by the release of pressure, one pin or another will disengage and spring back into its starting position. Make note of this so that you can change the order in which you go about your work and then repeat the same process on the reset pin pairs. Because every lock, as well as every imperfection of the lining up of the holes, is different, one cannot be sure in which order to go before beginning. The order will be determined by the existing bindings, but in the case that there are more than one pin pair with the same joining, one must try out various combinations until the correct is found.

No further!

When the cylinder pin rests on the upper edge of the casing, it has reached the border.

Make sure that you don't push the cylinder pin over the shear line in the casing. This will have the following grave consequences for your attempt. The wrong pin will become joined and the lock will not be able to be unlocked. You must then release pressure from the tension wrench, but probably not just from the falsely joined pin, but from all others as well. The end effect is that you will need to begin again.

Mounted in Reverse

With some makes of locks, ex. secondary locks, the cylinder will be mounted flipped 180°. This will make picking somewhat more

difficult, because one must then fight against gravity. With a correctly seated pin pair, the cylinder pin will fall back into the starting position unless held and supported from underneath (rather than maintaining counter tension on the springs from above). This difference allows you to discern this type of mounting. With increased practice, it will also be clear to you that the pins feel “empty,” meaning that one can scale them.

Unfortunately, handling the tools is noticeably more difficult from this position.

The Counter-pressure:

Without counter-pressure, it would not be possible to pick a lock.

When a lock has tension, the cylinder core can only turn so far as the casing pins allow themselves to slant. When tension from above is applied to the casing pin with the pick (over the cylinder pin in the pin canal), then the point of contact of the casing pin is moved to underneath and the casing pin is impelled to align vertically and take the cylinder with it.

This process is clear to see and feel with a tension wrench, especially a rigid tension wrench.

Raking

Raking is a fast method of opening locks, and speed is certainly no disadvantage. In practice, speed doesn't play an important role, but in the field, it is very important. There is no special, difficult-to-learn technique behind this concept; it just requires practice. Raking requires that the locksmith have “that special something.”

The Ground Principle is easy:

Insert the tension wrench in the cylinder and try out the rotation pressure. Insert the raking tool in the key hole and run it over the pins a few times with pressure until the lock is unlocked. Despite that raking is a very easy technique, it can be the most suitable method for opening even complicated locks.

Clarification:

It's supposed that you will glide over the pins in a cylinder lock under tension with the exact right pressure, pressure which will overcome the friction (present from the joining) and spring strength. The

pressure is, however, not strong enough to go over the edge on which the cylinder pin rests once it has reached the casing. The cylinder pin will therefore be pushed to the shear line but not enter the pin canal of the casing. In the case of the correct rotation moment, the cylinder core will turn minutely further. Now the raking tool will be able to move to the next pin and complete the same process. The casing pin, however, cannot return to the core, because it has met with the lower edge of the cylinder core and the spring strength is not enough to overcome this barrier. So goes the theory...

The correct tool for raking is the snake or the half-round. The author has also had good experiences with the double half-round. In order to get a feeling for the strength of the springs, insert the tension wrench without attempting rotation and run it a few times over the pins. Now repeat the process of withdrawal with very minute pressure applied by the tension wrench. The pressure which is exerted by the tool may only be as strong enough to overpower the spring strength and the friction, and not stronger. At the beginning, practice the pressure application only by withdrawal and not vice versa. Later with advanced perfection, you can also practice with insertion. In this way, continue to work until the pins are seated.

Make sure that you rake all the pins equally, the first in particular, because this one will tend to be more frustrating.

The specialist world is divided as to whether or not the rotation tension or the pressure applied from the tool should be increased by each stroke. The answer lies likely somewhere in the middle because both answers are logical. The author uses a technique of "build up." In other words, he alternatively increases the strength of each. This process appears to be the best, because with increasing rotational pressure, the friction will increase and therefore the pressure from the raking tool must be increased.

Another popular method is that as soon as the first pin has been correctly seated, the rotational pressure should be maintained the same and only the pins which have not yet become caught should be continually raked. When there are only one or two pins left, minutely increase the tension strength and pressure applied from the tool. This can bring the last pin to the correct position.

It is a grave disadvantage when neighboring pins possess a large height difference from one another. If you run into such a case, it will seem to you almost impossible to rake this lock because the pick will be too severely hindered by the obstructing pin. Picking is necessary with such a lock.

However, you will be able to rake the majority of cylinder locks to at least a certain point, and then perhaps close by bringing the last pins

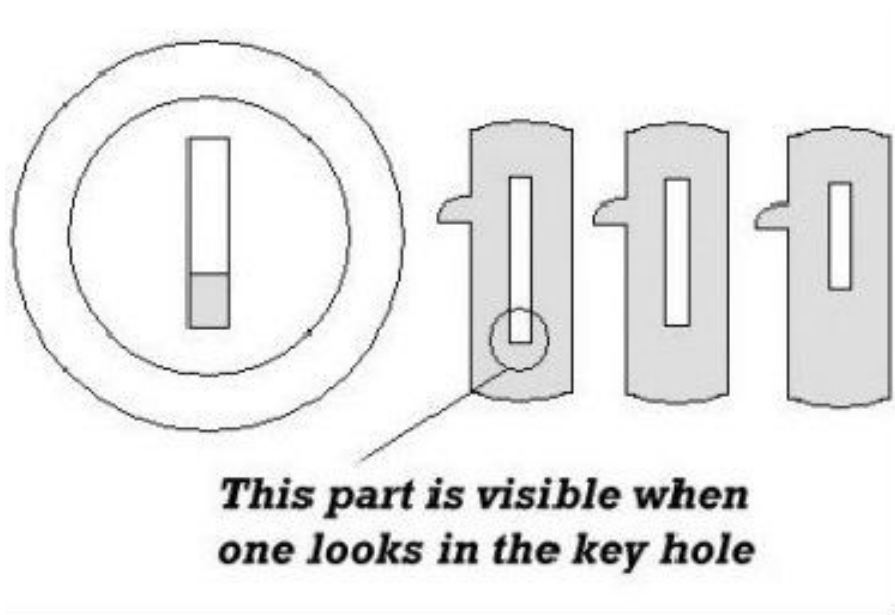
individually to a correct position.

Disc Tumblers

Most of the locks in desks, file cabinets and similar furniture consist of disc tumblers. This style will also be the most commonly used in cars. They're not nearly as secure as cylinder locks with pins and are mainly used due to a lack of space because they are not very deep. One can't forget the cost factor either, because disc tumblers are markedly lower in price than their pin tumbler counterparts.

This style is found in cars, however most auto locks are a double disc lock system with enough tumblers to raise the security.

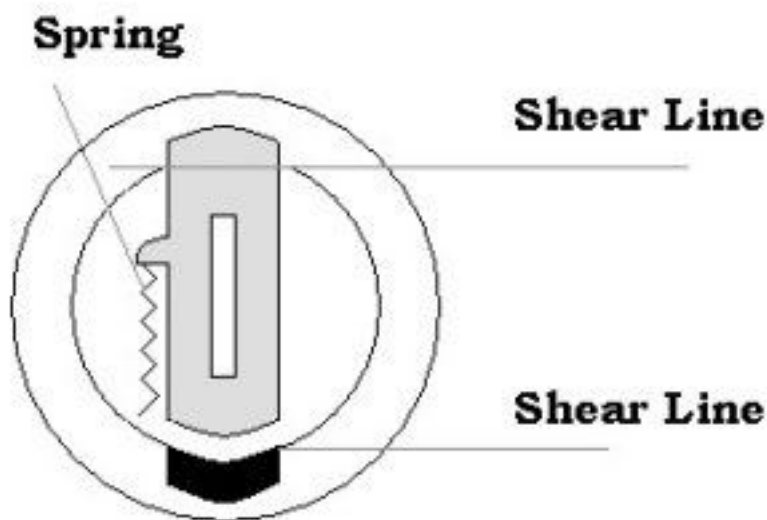
One can rarely distinguish a difference externally, however a look in the key hole and it is immediately clear; rather than round pins, one sees wide, flat discs.



This lock functions a little differently from the cylinder with pin tumblers. Inside are metal plates which are all the same size. Each disc also has an aperture, also the same size, which (and this is the deciding factor) lies at a different height on each plate. One inserts the key through this channel and thereby raises the plates. When the indentations on the key are correct, the discs are lifted to the junction plane and the cylinder can turn.

On the outside of the discs there is a little protrusion with a spring

attached which pushes the disc upwards. In order to allow the discs to glide directly on one another, the springs are installed on alternating sides of each subsequent disc.



Various Types of Disc Locks:

Without Guides: The individual discs have no guides and glide on one another. The discs are a single packet. The advantage of this type is that it is particularly appropriate for office furniture because the lock can be very short. To unlock, one should use the half-round pick or the double half-round, because the discs stand next to one another without space in between them and therefore can only be worked with these two tools.

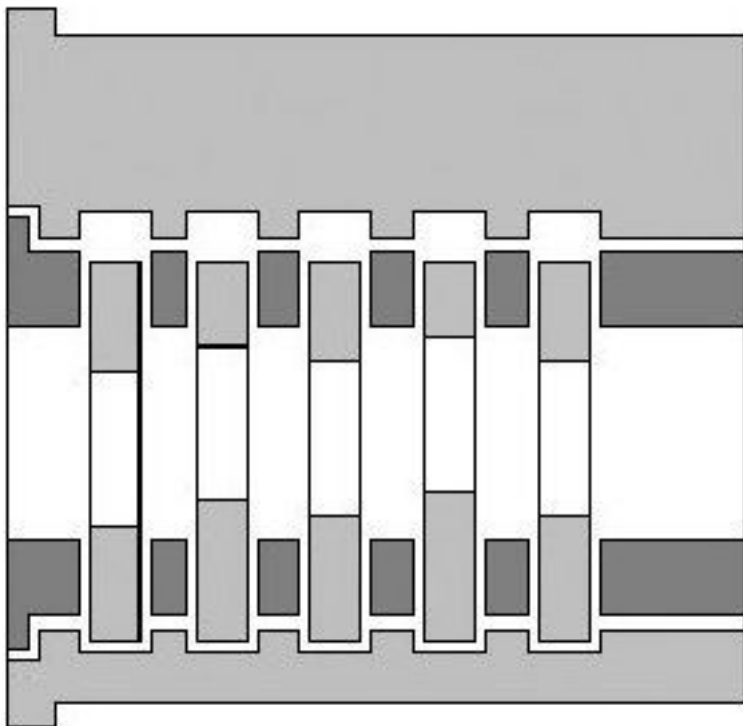
With Guides: The individual discs move in their own canals. The quality and durability is clearly higher. One uses the half-round or double half-round here as well, or even the snake.

For both types, raking is the best choice. Ideally, use a short, compact tension wrench and don't be shy to apply more rotational pressure than you would to a pin lock; it won't hurt anything.

Most disc tumbler locks are also opened very quickly with a pick gun, because most of these locks were produced very imperfectly as a rule.

Double Disc Lock: When one wishes for more security, like with cars or filing cabinets, you will find the double disc lock. They are easy to recognize, because the correct key can be reversed at will, as you know from your own car. One uses the same picks here, with the exception of the tension wrench. A double-sided tension wrench will work here excellently.

Beam-Disc Lock: In order to raise the level of security even higher, this exotic type will sometimes be used. There is a beam on the inside which locks in place inside the discs when they are in the same position. In order to pick this lock, you must not only apply pressure to the discs, but also secondarily to the beam in order to bring it into the engaged position. This requires much skill and sometimes time as well, therefore with cars which have this type of lock, another technique should be applied (See Chapter <Car>). Such locks are found primarily in American cars.



Cross-section of a disc lock

Even if many cars possess the normal disc tumbler locks, it is not a certainty that you will be able to rake or pick them. The manufacturers have simply increased the number of discs from four or five to ten or even more. Due to this measure, it's not only important to bring a large amount of skill to your attempt, but also to have a lot of luck in order to succeed. Often in such a case, another method should be employed.

A very good tool for opening disc locks is the test key (Jiggler). A more exact explanation will be given in the chapter <Cars>.

Obstacles

Open Cylinder Locks

Finally you have succeeded and the cylinder core turns – the lock is open!

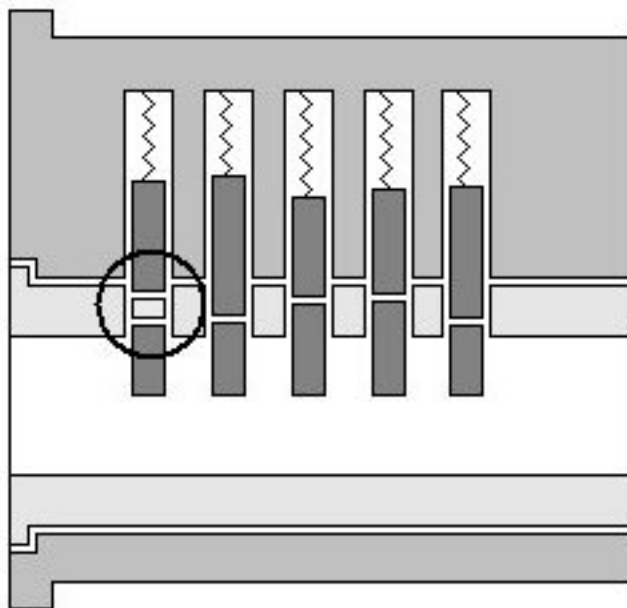
Now there are dangers lurking which could bring all your efforts to naught if you aren't careful.

The 180° Case

After a half-turn of the cylinder core, the casing pins could fall back into the open side of the key hole. Before this happens, you must hold the lower pins in the casing with the flat side of the pick. The tool must take the job of the back side of the key. A continued rotation of the cylinder is not possible otherwise, because it is once again blocked.

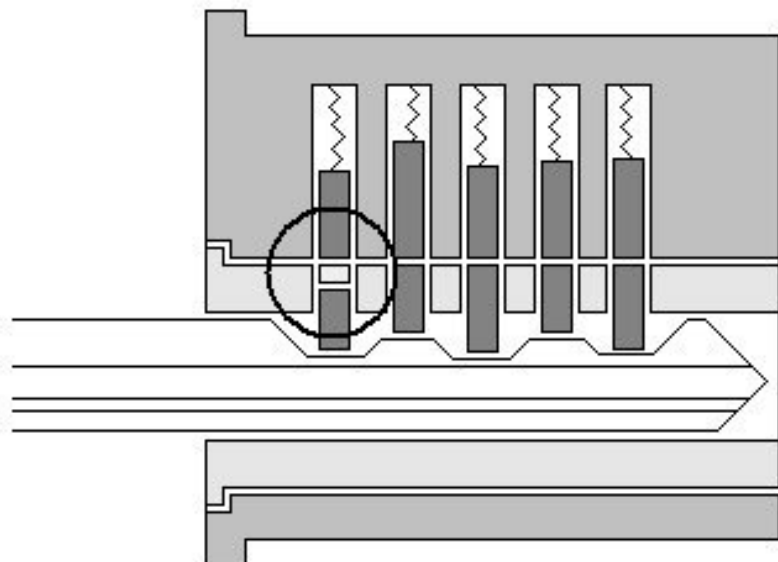
Watch out for master lock systems!

If this unfortunate occurrence happens with normal casing pins, you can simply press the pins back without a problem. However, the situation is different if there are very short pins, or separated pins, like those used in master lock systems.

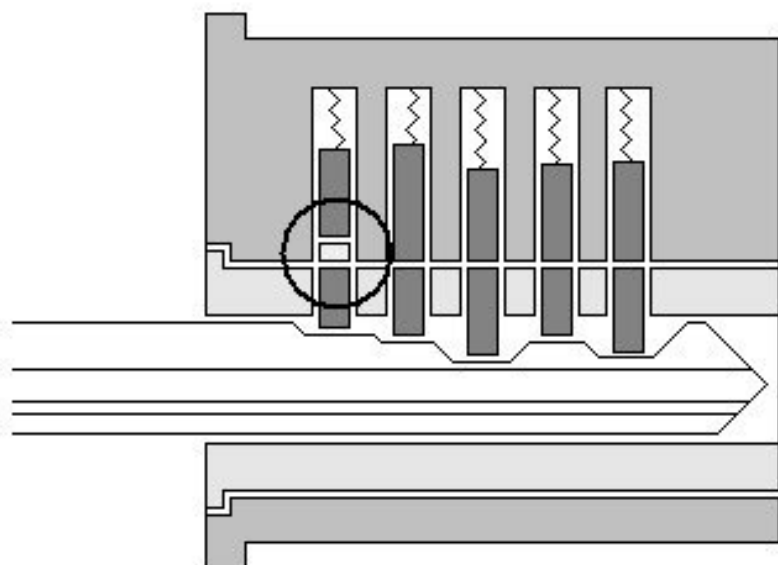


Simply master lock system

The very flat separated pins arrange themselves and lock there. The chance that you will be able to push the small pins back is practically nonexistent. The master lock is guaranteed to be ruined.



Simply master lock
system with key



Simply master lock
system with other key

More than one rotation?

Generally, entrance doors allow themselves to be locked twice. Therefore, you must make two full rotations in order to reverse this, as well as one-quarter turn more to fully open the door.

It makes, of course, no sense to pick the cylinder lock three times just because the turning of the core cause the pins to spring back to their original positions and lock the door once more.

In order to prevent this leap back to the starting position, use a flipper (see the chapter “Tools”). In the case that you don’t have a flipper at your disposal, there is another simple, effective option. You could “stuff” the cylinder.



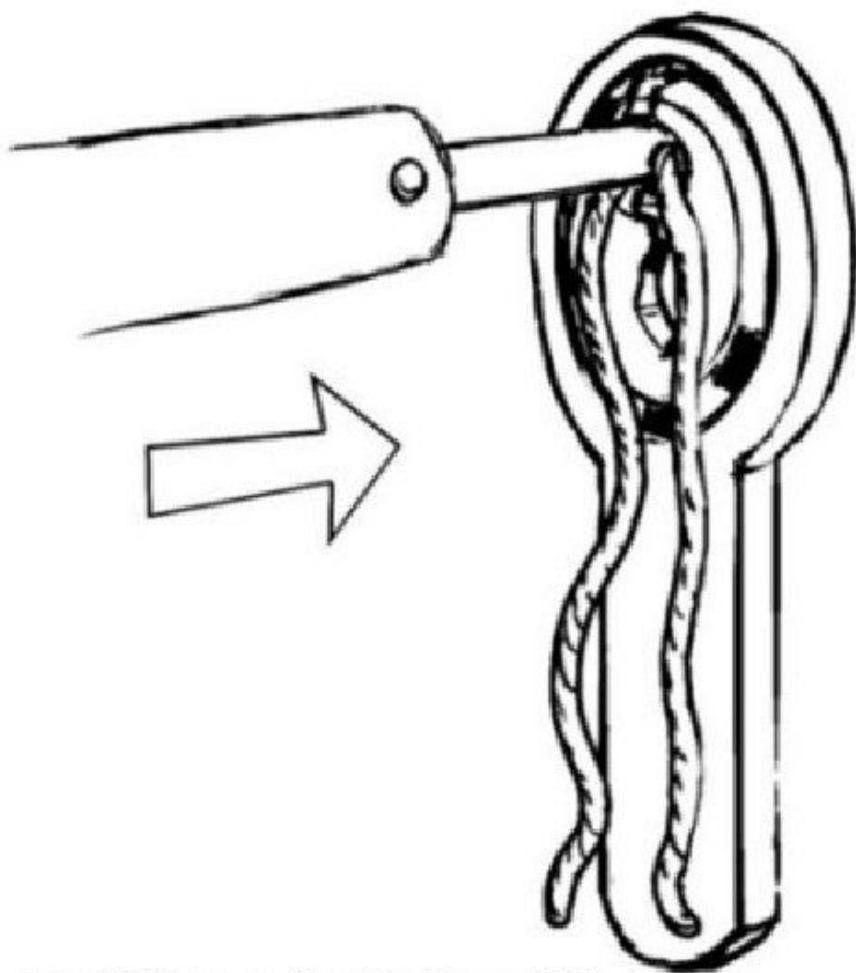
**Ideally cut pick for the
insertion of the string**

Use a pick that is cut like a half-diamond at the front (see picture) and a hemp-type string or piece of yarn. After you’ve unlocked the cylinder, turn it approximately a quarter-turn. In other words, far enough to prevent the pins from springing back in after you’ve picked them, but not far enough to allow the casing pins back in the key hole – the 180° case.

Take a piece of thread which is about a half a meter long and begin in the middle of the yarn to insert it into the key hole using the pick. Make sure that you insert the thread all the way to the back of the cylinder. There should be two lengths of yarn about the same size which now hang out of the lock.

Now begin to stuff the two halves alternatively into the lock until the key hole is entirely filled with yarn.

Don't be afraid to push hard against the yarn – the filling must be stuck fast and unyielding. You will likely have accomplished this after 10-15 times, and only the two ends of the yarn should protrude from the lock. Now you can turn the cylinder core without worry. No casing pin could possibly spring back into the core when it is totally stuffed. To remove the thread, simply pull on the ends. The reason why you should have began stuffing the thread in from the middle will become clear when the thread rips...



Stuffing a keyhole with
thread by means of a pick

In which direction?

Before you can use the tension wrench, you must decide a rotation direction. You can save yourself much trouble by choosing the correct direction at the beginning, because it can cost much time and motivation when you have struggled to pick a lock, only to be unable to open the door. With normal doors, you will note immediately because the cylinder will stop after a few degrees and resistance will make continuation impossible. If it is the right direction, you will feel a spring-tensioned resistance – this is the catch spring. Turn a little further so that the protrusion from the cylinder causes the spring to give. If you have chosen the wrong direction, nothing will happen. The resistance is solid.

A rule of thumb with entrance doors: When the lock is mounted left, one should rotate to the right, and vice versa.

Padlocks, furniture, desk and similar articles are mostly rotated clockwise.

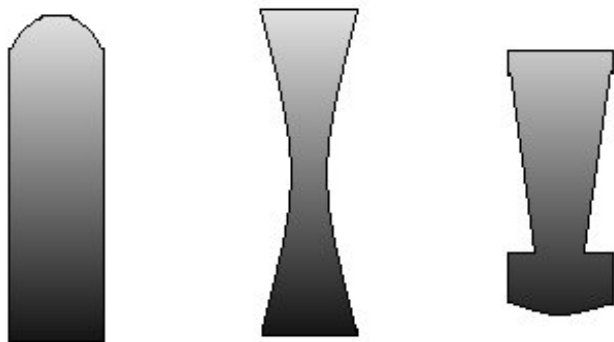
Modified Pins



Normal pin, spool pin, serrated pin

In order to make picking locks even harder than it already is, manufacturers have changed the forms of pin. These specially formed pins make a technician believe that a pin has come to its correct position when it actually hasn't.

One can tell by the behavior of the lock whether or not it possesses such pins, but recognizing this will not make picking the lock any easier.



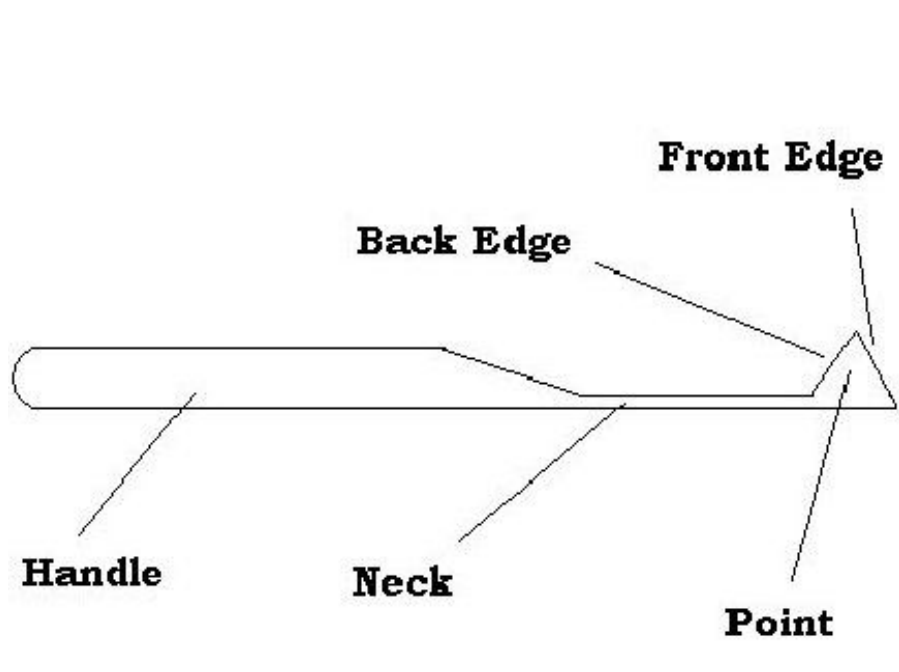
Rounded pin Diabolo-pin Mushroom pin

Tools for Picking and Raking

Each tool consists of at least two parts!

A bright palette of tools stands at your disposal.

The Pick:



The Handle:

A comfortable handle is important in allowing the tool to sit comfortably in the hand. The material can be made out of plastic, wood or metal. Principally, you should choose the handle which works best for you. Be particularly choosy with your selection of handle material, because that is the link between you and the cylinder and it acts like a sensor. Through the handle, you are informed of the progress inside the lock. A metal handle has the decided advantage that absolutely no impact or vibration will be absorbed, but rather directly and accurately communicated to your hand. The majority of picking and raking tools have handles of metal.

The Neck:

The neck has to be long enough to reach the rear-most pin without inserting the handle into the keyhole. It must be small enough to keep from getting stuck in the keyhole, but it can't be too thin or it will bounce too much and communicate imprecise or false information back to your hand. Then you won't be able to follow the mechanical process in the cylinder. The neck can be round, despite the fact that the most are manufactured from sheet metal and therefore rectangular in profile. This brings some advantages, the largest of which being that the angular structure will come close to containing a vertical spring.

The Point:

The point depends mainly on the form. This is the part which glides over the pins and takes the information. It should be easy to insert into the lock as well as to remove, and it should be able to move over the pins without requiring force. Each type of point has its own qualities. With a half-diamond, a steep-angled edge is easier to insert, but a gradually-sloped edge is easier to remove.

A hook is the ideal choice for "pin by pin" working (picking), but it is also appropriate for raking, though really just for extraction. A snake is only appropriate for raking because it acts almost the same as a key. So, be careful with your choice of point.

The most important picks:

Gradually Sloped Half-diamond



Front and rear edges are gradually sloped. It is therefore very easy to insert and remove this pick into the cylinder. An ideal tool for raking. Works very well with cylinders having comparable pin lengths. When there are large discrepancies in sizes between adjacent pins, however, one shouldn't use this tool because it will apply pressure to the neighboring pin.

Steep Half-diamond



Front and rear edges have noticeably steeper slopes as with the gradually sloped half-diamond. Because of this, one is able to push the individual pins deeper without touching the bordering pins. Therefore, this tool is useful with cylinders containing pins with large size discrepancies. In theory, it gives one more information about individual pins. Unfortunately, picks with steeply angled points are difficult to insert and maneuver in the cylinder. Despite this, it is a good option.

There are also half-diamonds with variable front and rear edges.

Diamond



The diamond has the same characteristics as the half-diamond except that it can also be used with cylinder locks containing pins on the upper and lower sides.

Half-round



The half-round is particularly appropriate for cylinders with disc tumblers, like those found in cheap locks applied to desks, office

furniture, or lockers. This tool is the best for unlocking a disc cylinder because the metal plates are very close to one another. The round point makes it easy to glide over the discs. With a half-diamond or rake, gliding wouldn't be as easy.

Round



Much in the same way that there are cylinder locks with upper and lower pins, there are also cylinders with upper and lower discs which are lockable from both sides. For these locks, the round pick is the best tool.

Double Half-round



This tool is very similar to the half-round and also used with disc tumbler locks. The two half-round parts can be more effective at setting the discs into position.

Double Round (Snowman)



Same characteristics as the round pick, but the two rounds have certain advantages by some locks.

The Hook

The hook is good for the “pin by pin” method. Through its curve, you can feel and manipulate each pin individually without touching those adjacent to it. With this tool, you can manipulate a lock like clockwork. The point of the hook can be flat or concave (curved), in order to avoid slippage on the pin points. It is the perfect tool on which to learn, because there is no other tool with which you can feel more and therefore learn more about the cylinder. A requirement is, of course, being able to properly manipulate it.

The perfect tool for picking, it is also good for raking, albeit only by extraction because only then is it able to apply pressure. But raking with this tool has the significant disadvantage that the pins could be scratched because of the hook construction and damage the cylinder.

The Half hook



The Full hook



The full hook is appropriate for “pin by pin”. Because of the rake, one is able to feel and bring each pin correctly in position specifically without effecting neighboring pins, even when you have to press each very far under.

Snake



Computer-generated Picks:

The best snake pick should imitate a wide palette of possible keys. It will be created after the most probable pin structures, thereby creating its curves. A good choice for auto locks as well as raking. Not appropriate for extremely varied cylinders.

Tension Wrench:

The job of the tension wrench is to turn the cylinder core. This means that it applies a rotational pressure to the core. The choice of the tension wrench depends on the lock and the technique used for unlocking it.

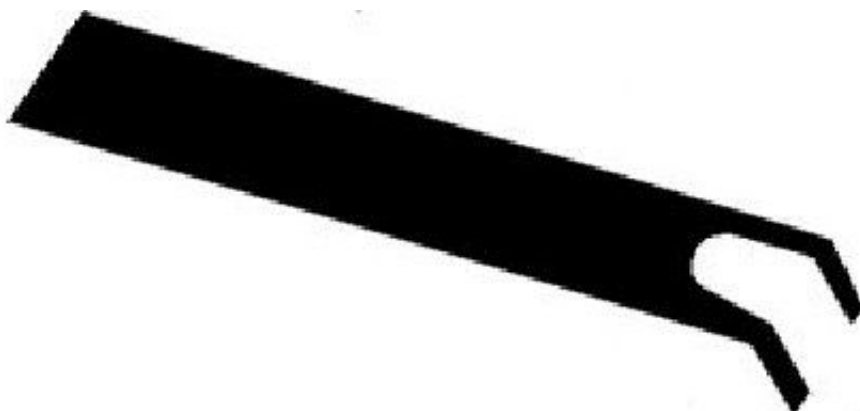


The small side will be inserted into the keyhole, in order to apply rotational pressure with the long side.

The tool cannot be inserted too far into the keyhole, or it will block the first pin and making picking or raking impossible. The small metal side can also not rest too high, or else the pick will not be able to freely move. However, too low and the tension wrench won't sit correctly in the key hole and won't be able to turn the core. One must pay attention to the long side to make sure that it is long enough to

apply enough rotational pressure, but only to a point, otherwise the tool will become unwieldy and impossible to negotiate with the door frame.

The weak tension wrench, one which is simply inserted, is mostly used with raking, as opposed to the tension wrench, used with picking due to its ability to control the application of pressure.



**Ideal tension wrench for
disc tumblers or cars**

The Tensed Rotator

The tensed rotator is the offset an attachment which is stuck in the key hole and adjustable at the press of a button. It is particularly well-suited for car locks or in combination with Electro-Picker. Some technicians prefer this type of lock; tension as a result of precise application of pre-tension.

The Rigid Tension Wrench



Double-sided rigid tension wrench

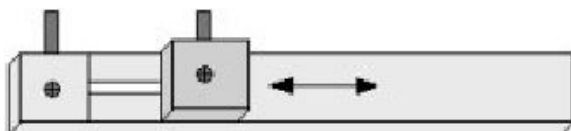
You must construct this tool yourself because it is not available in stores. However, the small investment will make itself worthwhile because no other tension wrench will feel more exact or be easier to handle.

It consists of a stretched-out Z with sanded ends of different strengths. In order to be able to wedge into the keyhole, the ends must be sanded somewhat conically. A few degrees will work and after a short time the tool will adjust itself.



A correctly wedged
tension wrench allows
itself to function as
a crank

The Adjustable Tension Wrench



The Extractor:

For broken keys or other blockages in the lock, there is the extractor.

It must be built so that one can insert it into the keyhole without effort and pull out the blockage. Some look like little saws with jagged edges, others simply have a hook.



What a hook extractor
should look like

The Flipper:

The flipper is a tool which, by means of the spring tension, rotates the cylinder core in a split-second. The speed is so great that the casing pins can't spring back during the rotation. The flipper is inserted in the keyhole in place of the tension wrench. In this way, a second picking of the cylinder is rendered unnecessary.

Other Methods

There will always be locks that can absolutely not be opened with picks, neither with picking guns nor by hand. Because it is probably necessary that the door is opened regardless, you will likely look for other methods. In the next chapter, good alternatives to picking will be clarified. Which methods apply to individual situations depends on the context and your possibilities. With such methods, is it possible to bypass the cylinder lock exploiting one single drill hole and open the door practically without visible damage.

Drilling the Cylinder Lock

A lost key and no picks at hand, a broken casing spring or no luck with picking. The list continues forever. Instead of a strike plate with visible screws there is perhaps a safety plate mounted. If these components meet, sometimes the only option is to use a drill.

There are some things to pay attention to in order to avoid a debacle.

Because of their convenience, a cordless drill is recommended. No cable to trip over, no endless search for an outlet, no extension cords, etc.



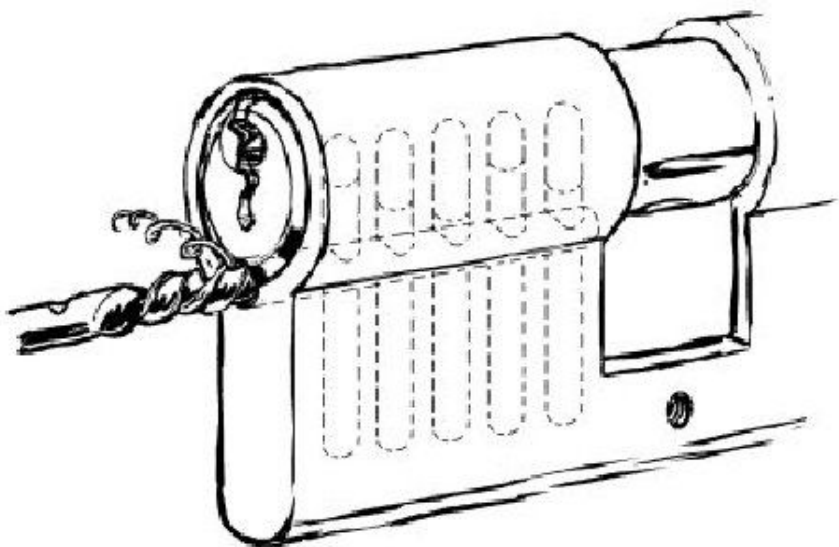
The most important decision with this work is that of the drill choice. With old or cheap locks which are entirely made out of brass, one can use a normal steel drill. This tool will have no problem with this metal. Remember though, that with one single steel pin in the

lock, the entire attempt stands to fail. The drill will immediately grind down or break

You must, therefore, have exact information about the composition of the lock before proceeding with a drill.

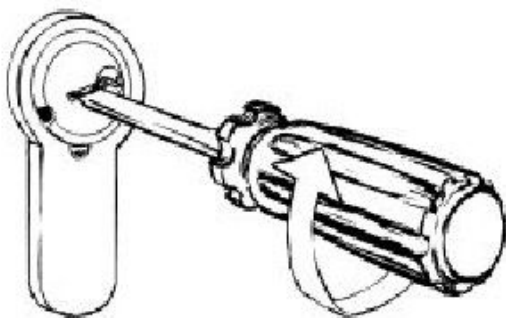
The best starting point for the drill in this case is the edge between the casing and cylinder, also named the shear line. In this location, the drill will be less likely to slip and will effectively bore through all necessary elements of the lock. For the first hole, use a five millimeter bit.

With moderate pressure, you will reach the first pin after a few millimeters. There is a clear feedback you will feel from the drill and a different sound (grinding). If you don't have any experience yet with this situation, then drill in reverse; with a little bit of luck, you won't just drill out the tool, but a piece of the destroyed pin. It can also be that the pin falls free. This has some advantages. You receive a confirmation that what you felt and heard was really a pin. Look in the hole – you should clearly see the first pin canal. In the case that there are shavings in the hole, you must blow them out with closed eyes (Be careful – hot!). This doesn't hurt the attempt at all, and the drill has a chance to cool off. If you don't have any cutting oil, you can use a drop of saliva as well.



Continue repeating this step until the last pin (five at most). Of course, you must also drill through the last pin. Drill one or two millimeters further to be certain you have reached the end. However, be very careful that you don't drill too deeply.

Sometimes the core is rotated by the drill. In order to be certain that that doesn't continue to happen, use a 6 millimeter bit until the end of the drilled hole. Any pins which have wedged themselves in will be, in theory, removed and the drill tension will ease. You may need to repeat this a few times until the rest is out of the way. It should no longer be a problem to rotate the core.



**Once you have drilled the hole,
turn the core with a screwdriver**

Hard Pins

With some modern cylinder locks, the core and casing pins are made out of hard steel. However, if you have a hard metal drill, you can proceed with the same method that was described above. The quality of the special drills nearly always overpowers the strength of the steel pins. With such a purchase, you should go with high quality products from a specialty shop, not a deal in a set.

Attention!

Hard metal drills cannot be cooled, or the drill bit will spring!

Pin Canal Drilling

Another way is to drill a hole in the casing in order to disengage the pins.

This variant is somewhat more intricate, but sometimes it is the preferable or perhaps only solution. Maybe you want to use this elegant way.

If you don't have a really good hard metal drill and the pins in the cylinder are guaranteed to be hard.

With some locks, the casing or cylinder is made out of hard metal (instead of steel or brass).

Hard metal pins can't be drilled!

Even more hard pins



Some cylinder locks employ hard metal pins principally to protect against entry by drilling. They are mostly only 1 mm in diameter, but are enough based on the casing height and are pressed pair-wise somewhat outside of the pin canal. Drill a hole with a 3 mm bit from the front about 2 mm above the lower edge until you reach the first pin.

Reverse drill out the tool and drill in again directly above the first hole, so that there is only a small separation between them. Continue doing this until the front of the cylinder has four to five holes which all reach back to the first pin. Now connect the holes by drilling through the separations. Carefully move the drill up and down between the holes. If you have a special drill at your disposal which

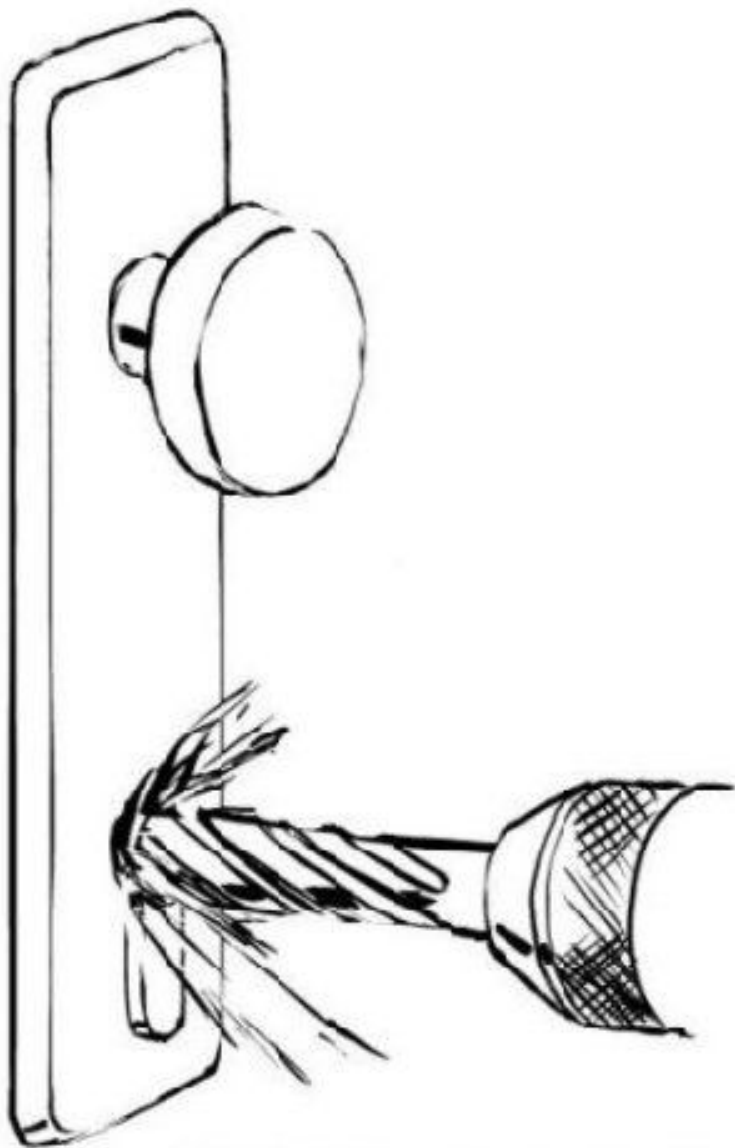
has a flat pointed bit, you will be at a distinct advantage. Always remember that the bits break very easily.

After a short time, there will be a slot in the cylinder and you can comfortably remove the first pin pair. Repeat the above steps until the cylinder is pin-free and there is no more threat of hard metal.

Glued Keyhole

Something very frustrating is when, for whatever reason, glue is in the lock. You will note this immediately because the key can't be stuck even a millimeter into the lock. A closer look and you see that yellowish or white glue oozes out of the cylinder core. If the lock is glued so that a rotation without pins is impossible, you must drill out the entire cylinder.

When a lock is simply made from brass, a drill with steel bits is no problem. Begin to drill exactly in the middle of the cylinder core with a 6 mm bit and continue about the length of the key. All five pins must be drilled through. Then drill once more with a 10 mm bit. Most cylinder cores will then crumble apart.



Drilling completely through of
the cylinder core:
Sometimes this is the only way

Drilling away the core

With the newest types of non-spring cylinder locks, magnet, or other equally complicated products, there is only one fool-proof method.

You must drill out the entire core. This is theoretically possible with normal locks as well, but it is not necessary and one should think long and hard about choosing this method in that case because of its large expenses.

A normal drill would soon reach its limitations on a special cylinder lock and after a few millimeters be unable to proceed

You need a special tool for this job:

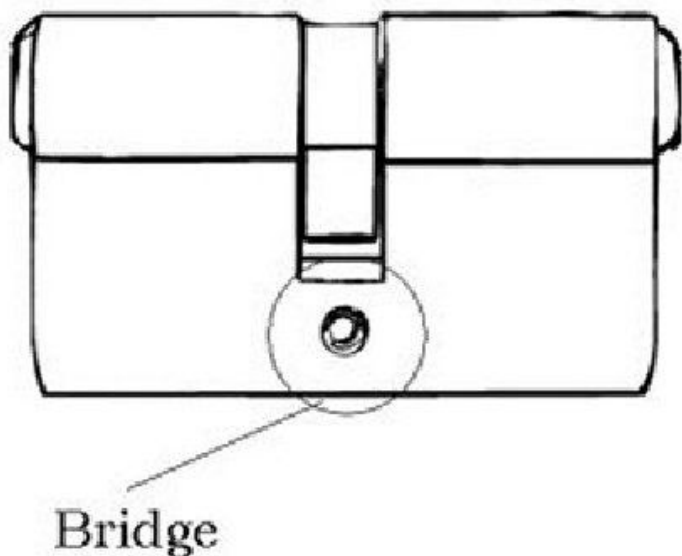
A straight Grinder (Milling Machine)

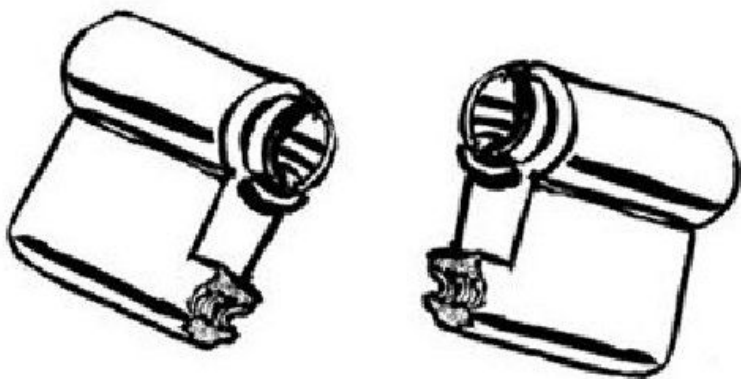
This machine comes with a drill bit that is harder than every cylinder. With a rotational speed of over 30,000 U/min, it bores right through the core. With a little practice, this drill is relatively easy to master. The only disadvantage is high purchase price.

Cylinder lock breaking

The Stamp – a brilliant invention

Every double cylinder is very easy to break apart or twist off, because in the middle of the lock, there is a pre-determined breaking point. Already the thinnest part of the lock, the “bridge,” is so weakened by the drilled hole, that there is actually only a few square millimeters which hold the two cylinder halves together.





Broken cylinder lock

If the plan was already to get another lock because the key is missing, you can break the lock without any qualms. If you find a normal mounting on the door which is easily screwed off, you should choose this method.

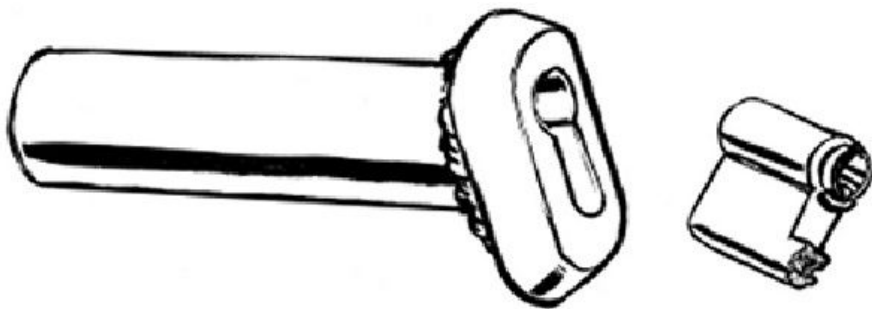
Usually, cylinder locks are set far enough out from the overall handle system that it is possible to hold them fast with appropriate tools. Usually only a little wood must be removed from the door in order to make the cylinder accessible.

You have the option of various methods and tools for this work, but they all have the same goal: To break the cylinder in the middle.

If you will only have to break a cylinder lock one single time, then it is not worth your while to purchase or make a special tool. Use a strong set of locking pliers such as those used in welding to clamp the lock and hold it fast.

If you will be doing this often, then it is worth investing in a stamp. With this simple but ingenious tool, you can work more safely and effectively.

If you will see this situation infrequently, it is possible to quickly make your own effective stamp. You only need a welding tool, a commercially available, oval security rosette out of steel and a piece of steel pipe (ca. 20 mm in diameter and 50 cm long). Weld the flat side of the rosette to the cleanly cut end of pipe.



One must always observe the customary safety measures with welding!

The author thinks that this tool is close to ideal, because as a result of the conical form of the rosette, it functions well in tight space conditions as well (Metal doors, fire doors...)

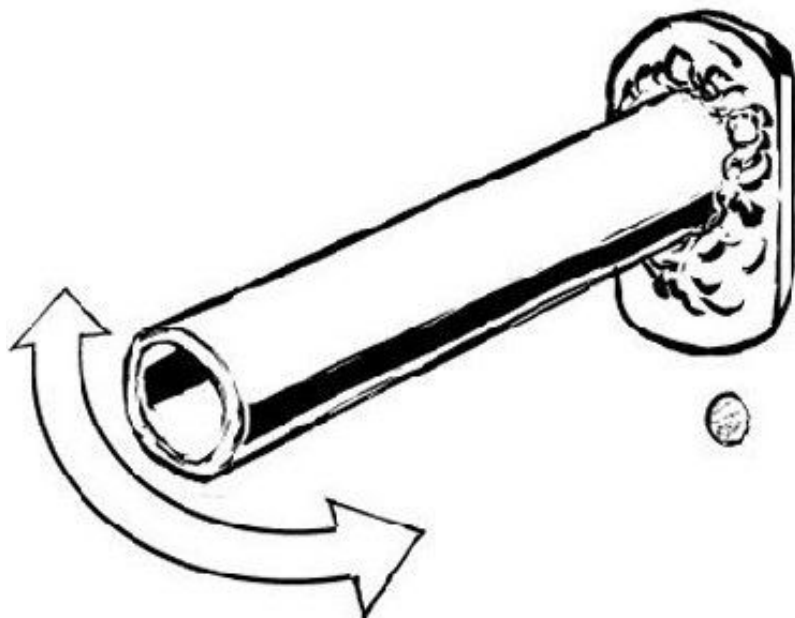
If you prefer not to do the welding yourself, there are very good industrially made tools available in specialty stores.

The instructions for proceeding are simple:

Insert the stamp over the cylinder. The further in you can insert the stamp, the better. It should be at least 10 mm, however, or else you will definitely have problems with slipping.

Move the pipe slowly but firmly alternately from left to right to weaken the cylinder. Each time, your movement should be stronger, until the lock breaks in the middle. With a long pipe, you won't change directions more than 5 or 6 times until this happens.

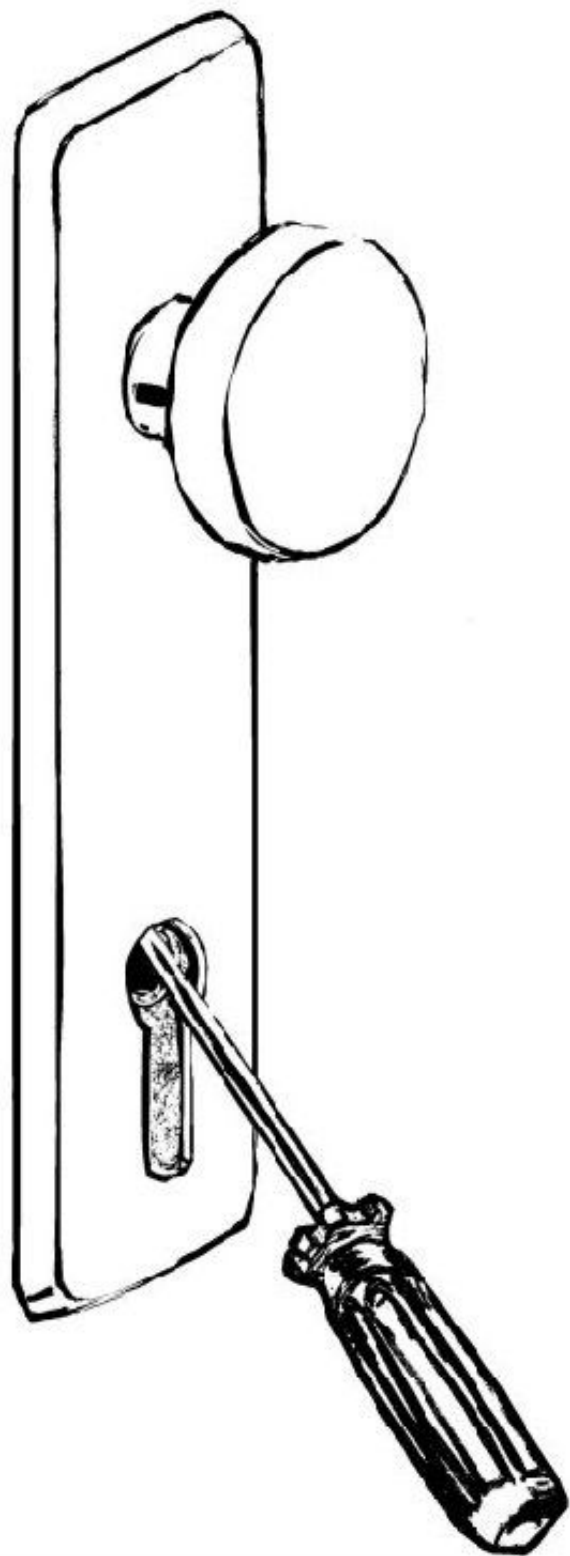
The procedure for locking pliers is the same, although you may need to apply more pressure because of the smaller leverage with the pliers.



Set stamp and move
from side to side

For the sake of completeness, it should be mentioned that the stamp can also move vertically. The cylinder will break even faster, but it brings the danger of damaging the overall lock apparatus. That could mean anything from unnecessary additional expenses to serious problems due to blockage of the mechanic.

Cylinder Broken – Now what?



After the cylinder is broken, look into the lock. With a little luck, the lock nose is in the same position. With a large screwdriver, you can turn this quite easily. If it is caught on the bar of the lock apparatus, you will need to be especially careful to keep it from falling out. With a little luck, the lock nose is tipped over and has either, in the best case scenario, already fallen out with the half of cylinder, or it is leaning sideways in the apparatus. The lock nose must absolutely be removed or your way will be blocked.

With a little bit of luck, it will allow itself to be fished out by the screwdriver.

The lock nose can, once you get it out of your way, sink into the lock apparatus, but you must never forget to fish it out before installing a new lock.

Once the way to the inner part of the lock has been made clear, the mechanic is very easy to open. With a little finger dexterity, you can manage it with a screwdriver, but if you don't have enough practice, a lock picking rake also works.

You must lift the tumbler spring at the same time as pushing the bolt. Sounds complicated, but actually isn't. With a plastic manufactured key, you will complete the work in no time.

All of this work will be easier if you can remove the second half of the cylinder as well. This is very easy if you insert a large screwdriver in the middle of the opening and the knock the other half out through the other side of the door. Don't expect to meet much pressure; at most, the cylinder part is only half-hanging on to the fastening screw thread. With one single, well-placed hit, it will fly far into the room.

Half-Cylinder

Don't break it!

If a door only has to be locked from one side (Garage door, key operated switch, closets, etc), then a half-cylinder will be used. You may never use this technique on such a lock. These locks do not break at the bridge and by attempting to do so, you will seriously damage the entire lock. Only with a large time investment will you be able to accomplish it, and even then the lock will need to be entirely replaced. Normally, this is not tragic, but to find a lock which works in such a place where a half-cylinder is used is not always easy. In the worst case scenario, you may have to replace the entire thing or in the case of metal doors, perhaps even weld.

The author recommends another described method for the removal of half-cylinders. Try first to access to the lock apparatus mechanic or cylinder bolt.

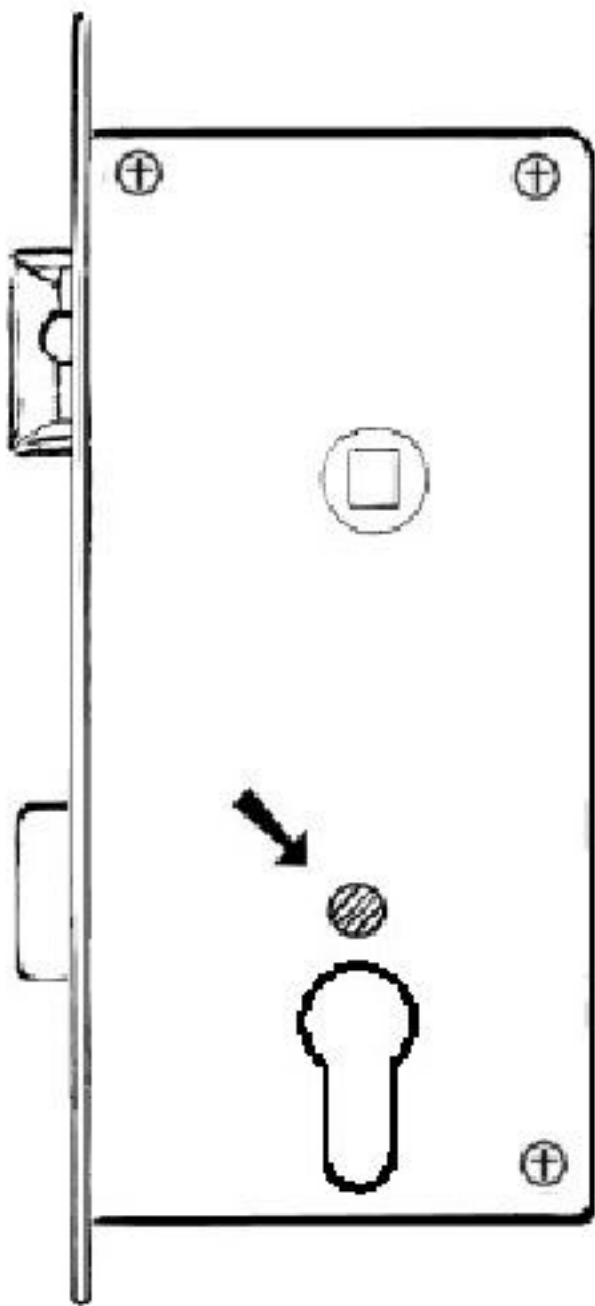
Lock Apparatus Drilling

An elegant solution is to drill a small hole in the lock apparatus in the appropriate place. It is the most beloved method to open locked doors, and standard for practically all locksmiths. No part of the lock will be damaged and it leaves practically no trace. The only requirement is ability to access the lock apparatus – there can be no protection plate installed.

Of course, one must know the workings of the mechanic in the lock apparatus exactly in order to employ this technique without complications.

Instructions:

Screw off the plate, or if it doesn't allow itself to come completely undone, unscrew only the bottom edge and bend it carefully upward until the cylinder is entirely exposed. Remove the upper wooden part of the cylinder in order to have a clear view of the metal. You can proceed in a relaxed fashion, because the plate will cover all your tracks in the end.



Drill through the metal of the lock apparatus about 8-10 mm above the cylinder. A 5er or 6er hole will work. Drill slowly and

carefully, especially upon entry, in order not to damage anything.

The hole is perfectly positioned when there remains a small separation between the hole and cylinder, but the tumbler and bolt are accessible. Insert a scribe under the tumbler and lift this while pushing the bolt simultaneously. This is completed in one, single, effective movement. If you move the bolt only partially, this is a partial victory. The tumbler will remain raised and the bolt will remain in its new position, which you can then continue on your next attempt. In the case that the lock was locked with two rotations, you have to repeat this step. Now it is only a matter of overcoming this – finished!

A possible hindrance could be the location of the hole on the inner side of the apparatus. The bolt could be difficult to push if this is the case. But with enough strength it will move regardless.

Rarely, but sometimes, it happens that the hole was too large. The lock apparatus must be taken apart and cleaned in order to properly function again without problems.

Cut the security plate away

Due to expense, this technique is not frequently employed. However, there are some situations in which it makes sense to remove the entire plate (cut away with a cut-off wheel). In the case of a broken key, the entry to the lock must be clear. There are also cylinders which don't allow themselves to be destroyed because they are not replaceable. It can also be easier to remove the protection cover than to drill through a very hard steel cylinder.

In the field, you will encounter two types of internally secured protection plates.

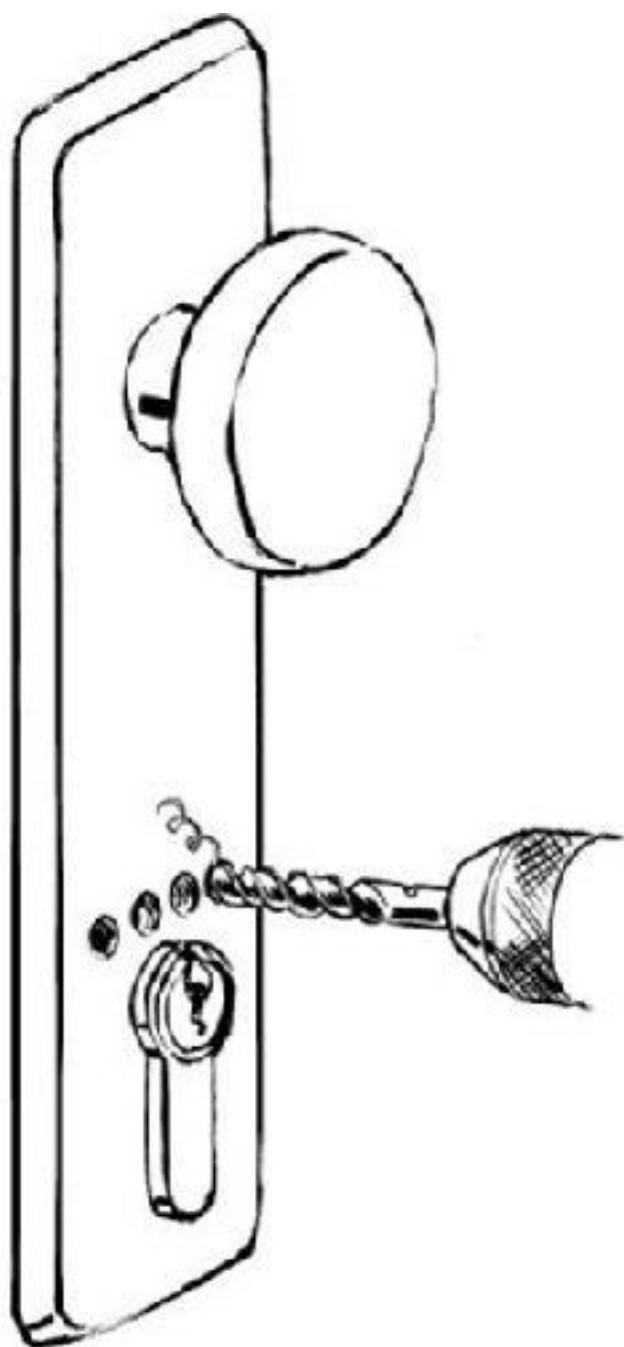
The simple protection plate made out of light metal with or without steel inlay, which will produce no or little problem and simply must be drilled away. They offer little outside of optical security.

And there are standardized safety plates, which are clearly more resistant.

Removal of an aluminum protection plate

You must simply drill multiple holes above the cylinder along the

entire length of the protection plate and then connect them. With a very weak material, you can then connect the holes by drilling, but otherwise this could damage your bit. With a strong screwdriver, the weakened plate consisting of stronger material can be easily broken.



Drill tiny holes above the cylinder and then connect

Without steel inlay, the cylinder now stands completely free and you can proceed as you wish (ex. Apparatus drilling).

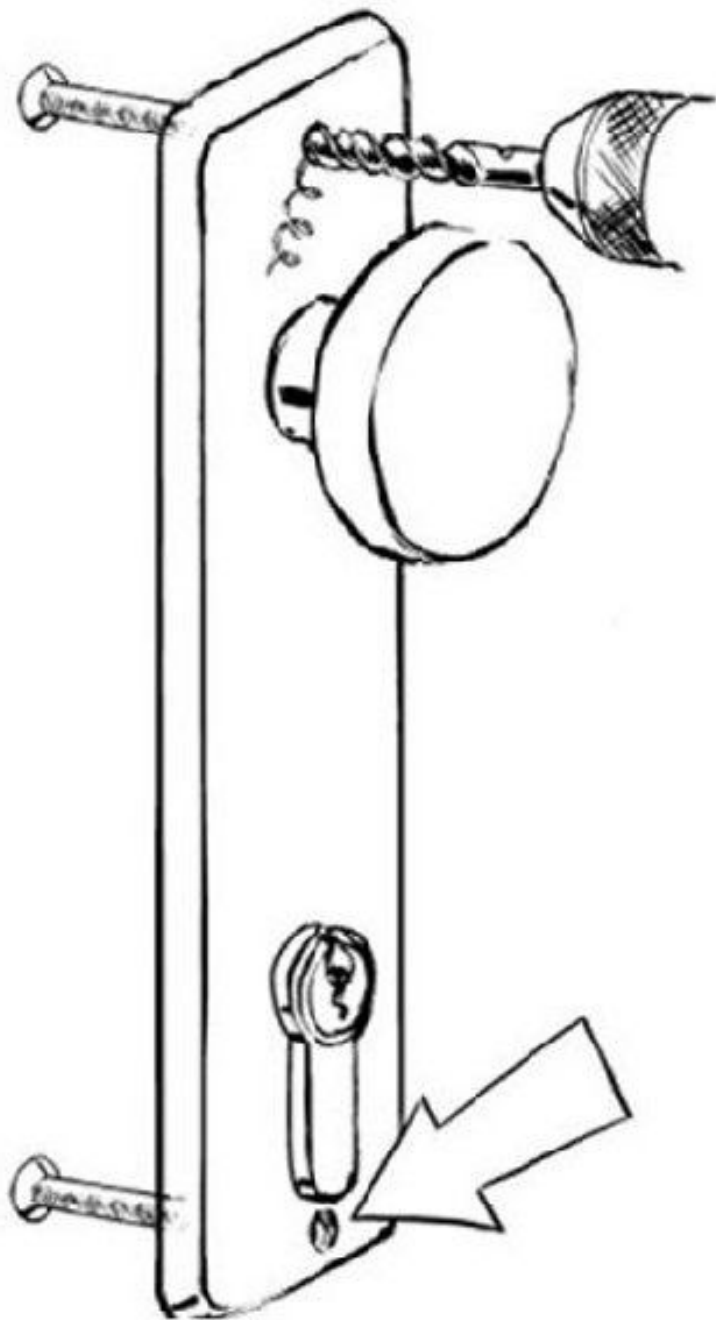
With very easy models, it is possible to drill through the shield from outside and destroy the fastening screws. The only requirement for this is to know the exact location of the screws. Using this method, it is possible to demount plates in only a few moments.

Removal of a safety plate

With true safety plates, the situation looks somewhat different. Because these have been manufactured from a hard steel plate, drilling is not an option.

A cut-off wheel is the only remaining answer here. You must cut a slit above the cylinder in order to break the plate. With very strong models, you may need to cut another slit below as well in order to free the cylinder. This is a very rough job that brings dangers with it. You must absolutely use protection goggles and clothing, as well as secure the location. If you use a Minitool-Flex, you can expect less noise and mess.

This hand-held gadget also allows you to proceed more precisely than with a cut-off wheel. At any rate, a diamond disc is certainly necessary and this work requires some time. It may need as much as an hour (!) before complete.



Drill through the shield and
remove the screws

Core Remover

The principle of a core remover is very simple, but because of the large number and high quality of cylinders on the market, this method does not always guarantee success. However, this method has survived in spite of its difficulties and is the favored method of many technicians.

Various gadgets and tools are available in specialty shops which all have their advantages and disadvantages.

The procedure is similar to that of a modern corkscrew. With a little luck, you will be able to, like the author, create your own tool.

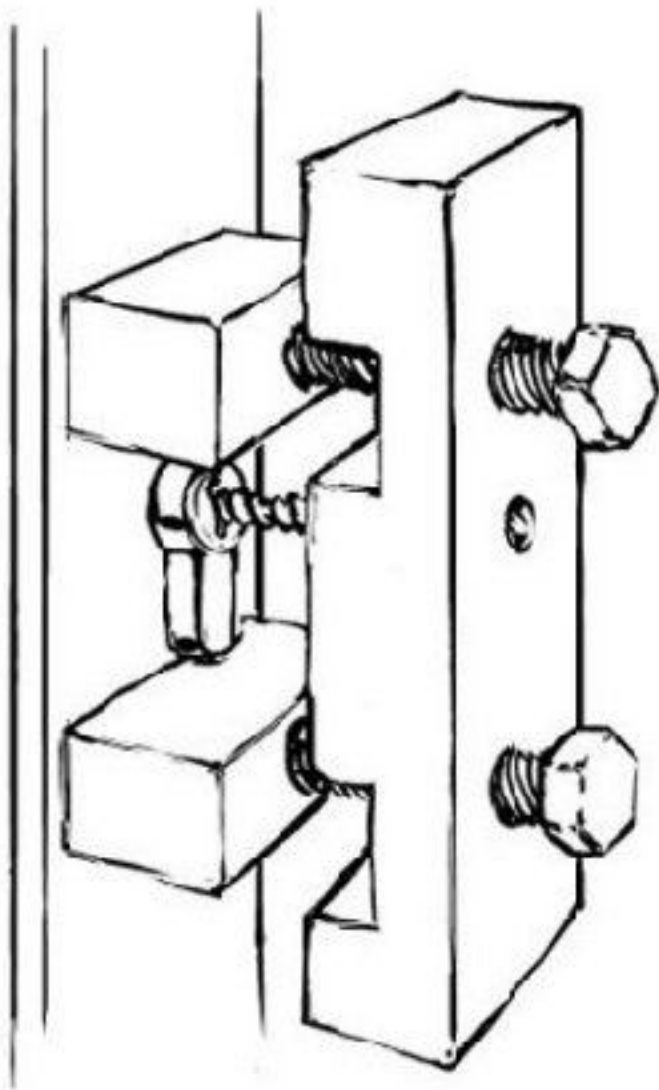


Diagram of a simple core
remover device

The ground requirement is that a very high-tension screw must be screwed into the key hole. This is the hardest part of the entire undertaking. The special screw is conceived so, that it will cut from itself in the lock, despite that it is recommended to pre-drill.

With tension screws of the diameter:

4 mm max. 3 mm

5 mm max. 4 mm

6 mm max. 5 mm (rare)

Because each screw just sits in the screw socket, they must be inserted far enough in the lock in order to achieve as much supporting surface as the core diameter screw has. Because the screws can vary greatly, it can not be exactly said how far this is.

A minimum of 5 and maximum of 10 turns should work. Try not to turn the screw more because this is pointless. Quite the opposite – there is the danger that the screw will get caught in the screw hole and then pushed back.

Tip: Use a cordless drill and cutting oil to screw in.

When the screw is securely anchored in the cylinder, tighten the contraption first by hand. As soon as this isn't possible anymore, use a ratchet and alternatively tighten the two screws. The puller plate must always be exactly aligned; in other words, it must stand at a right angle to the cylinder.

Slowly pull the cylinder out of the apparatus. If the cylinder breaks in the middle and is pulled out this way, this is perfect.

This will not proceed as easily if the core wanders out of the casing. You then must turn the lock nose with a screwdriver.

Core pulling plate

With some types of cylinders (ex. spring-free), one wishes only to remove the core from the cylinder. In order to do this, you must use a single support plate.

Some core pulling plates even allow you to remove the cores from cylinders which would be protected against core pulling.

In the meantime, a new procedure has been discovered. It is a combination between a core puller and a stamp. With this tool, it is possible to pull the deciding part out of the protection plate in order to break it without encompassing it.

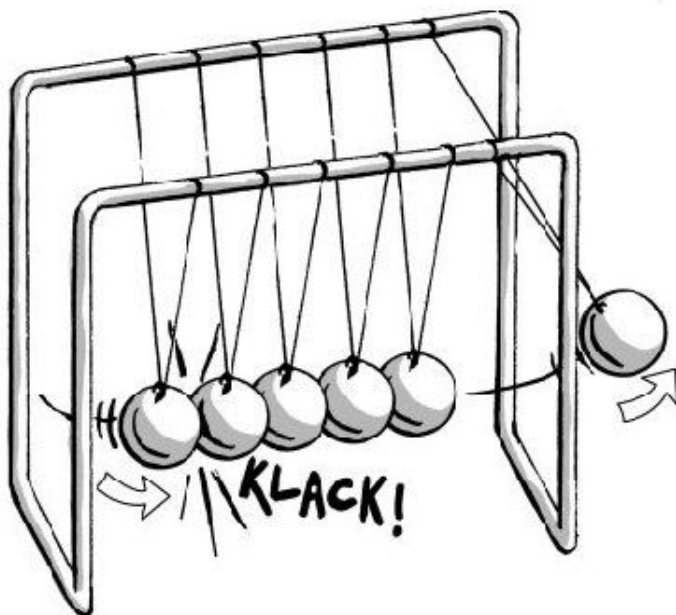
With all of these tools, one should proceed carefully and only use quality tools, because a broken screw can cause you large problems.

Under these circumstances, you must clumsily drill out the cylinder.

Take a break and start later if you have the feeling that a mistake could happen!

Vibration

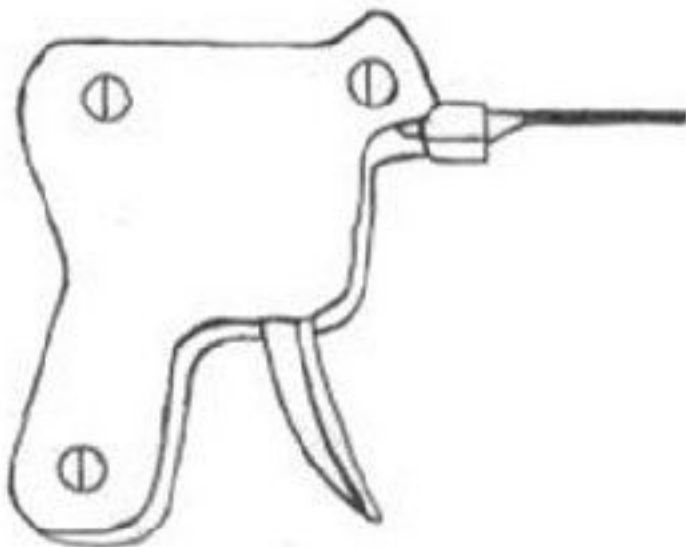
You know the toy with the six balls which hang from strings, where when the first is lifted and dropped, the last will then be knocked away. This effect can be wonderfully taken advantage of in lock opening.



When one gives a cylinder pin a tap with enough strength, it will transmit this on to the casing pin without changing its own position. The lower pin will be thereby knocked under and there will be a gap between the pins. If you accomplish this with all of the pins in a lock at the same time, the shear line is then free and the cylinder core can turn.

This technique is called the Percussion Principle.

Mechanical Gadgets



**Sketch of a
picking gun**

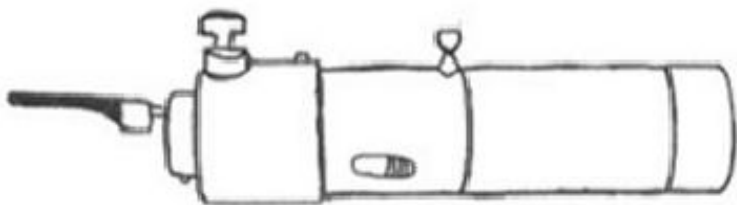
There are mechanical “pistol picks” which can give pins this strong hit. They are similar to a pistol, but instead of having a barrel, they have a picking needle which gives the impulse. They are reasonably priced and can do your job without batteries.

The field of application for this method is somewhat small, however, because the percussion pistol can always give just one hit for each trigger pull. For this impact to be given at the same time as light rotational pressure is applied requires real luck and fortune. With old or very simple lock models, this works, but with new security cylinders, such a method will rarely work.

Electric Gadgets

An electric picker was created especially in the USA in order to allow police, firemen, and similar emergency workers to open locks in a short amount of time. It should also be available to those who have no special training in such a field.

Because they wished to solve the problem which pistol picks have, these can transmit many thousands of hits per minute to a lock mechanism of a cylinder (up to 40,000). This exponentially increases the chances of success, but this machine is still no magic wand. The technique must still be learned of how to open a lock in a short time. If you master the technique of the E-Picker, you will be in the position to open complicated cylinder locks quite easily. Even locks with cross ward locking mechanisms or para-central profiles allow themselves to be opened with a little practice. With this last category, a razor-thin needle must be used in order to enter the profile.



Sketch of an Electro-Picker

There are many different models which are cord or battery powered. The majority have their stick height, impact frequency and impact intensity listed, but not all.

The Electro-Picker reaches its limit with cylinder locks with mushroom and spool pins, however, because it isn't always guaranteed to work with these.

If the master lock system entirely gives in to the pressure, then it is guaranteed that the pin construction will be damaged. The thin between-plates have probably been jammed.

Power Keys

(Bump Keys)

One can take advantage of the effect of the transmission of energy without the use of a pistol pick, using instead a prepared blank key. With this technique, the well-prepared power key will be rapped so hard in the cylinder that the core pins will maintain their position but the lower pins in the casing will be flung downwards. In this fraction of a second there is a gap, the cylinder wall is free, and the cylinder allows itself to turn.

The fascinating thing about this technique is that it also allows you to open ultra-modern and very precise cylinder locks in the blink of an eye. Locks which would stand no chance of being opened by picking or raking are no problem for a power key.

It requires a little work time and some blanks, but it certainly is worth your while to make a power key.

You should absolutely produce some power keys for each standard lock profile. Three or four different blanks should be enough for each profile. Find out what standard locks are mounted in your city to properly arm yourself.



A perfectly made power key

The bumps actually perform the power work!

The incisions on the blank must absolutely be smaller as the smallest possible incision on a normal key, or else the pins will automatically block the shear line. In the completion of a series, one power key should be a standard against which you can compare the others to insure incisions of identical height and distance. With the others, the distance and height should vary a little. This difference shouldn't be more than $1/10$ mm, however. Often even $1/100$ mm will be enough to be successful.

Universal Blanks?

In order to prevent every key from being able to be inserted in a certain key hole, the manufacturers make them very varied. This is actually a very effective security measure. However, if you file down the profile of a key, it will fit not only in the key hole it was meant for, but other similar ones as well. The more that you file it down, the closer you come to a universal blank. You can go too far, though, and make the key too thin to remain stable and steady. It is recommended that you prepare several such blanks to be used in a wide range of cylinders so that you are well-prepared. With master key systems, it is often enough to make just small changes to a key so that it will function in many cylinders.

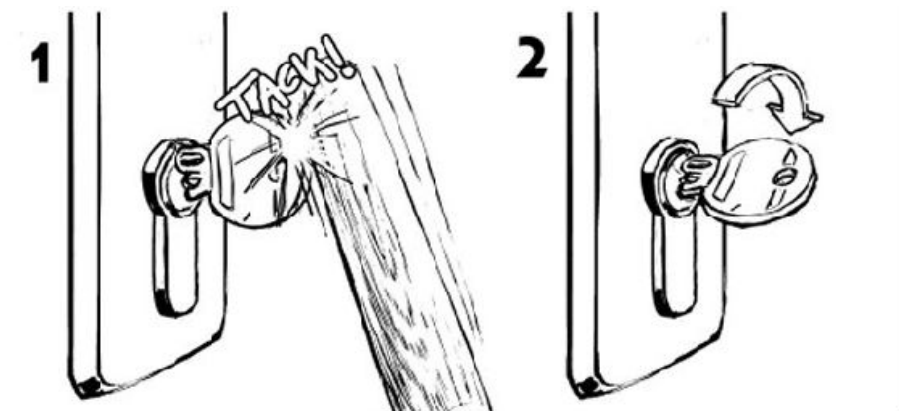
A well-made power key is, therefore, thin and flat and almost like a universal key.

The art one needs to master in order to practice this technique is that of correct timing. Being able to turn the power key is dependant on exactly the moment when the casing pins are knocked under and the shear line is free.

This will of course not function with every try, because perhaps the pins will not be knocked under far enough, or maybe the core pins will move as well and block the cylinder wall. But the successes will surprise you and you will be astounded how simply and quick this ingenious trick works.

The power key is used so:

Stick the point of the power key in the lock and push it in very quickly, while at the same time turning. Try to achieve a fluid movement, approximately that which you would use putting a normal key in a lock, except much faster.



Warning! Don't break!

Stick the key almost entirely into the lock. The last pin must be free, however, and should not touch (or touch only lightly) the power key. Only this way are you certain that all the incisions stand before the pins. If you can't exactly feel how far you should insert the power key in the cylinder, proceed in the following manner: Insert the key entirely into the lock and then pull it out until you hear a click. Then you can be certain that the last pin is free. The edges of the key can also lightly touch the pins. You must try various methods to open the lock. It can't really be said ahead of time which procedure is the best. Tap with a light hammer on the key in order to give a sudden impact to the cylinder. Simultaneously, turn the key with the other hand in the desired direction. This is the most effective way to use a power key!



The Trick with the Rubber band

Insert the key until the correct point in the lock. Thread a strong rubber band through the hole of the key and wrap it a few times around the head of the key and the door handle. This will produce a rotation tension as if you were rotating the key in the core. Tap on the key with a light hammer, or better, with the handle of a screwdriver lightly and in short intervals in order to transmit the impact.

Quickly and rhythmically: ra – ta – ta - ta...



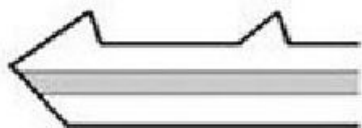
Wrap the rubber band around the entire lock system in order to apply rotating pressure to the key. Then hammer!

However, proceed in order to prevent breaking the power key. You

are only allowed to first apply pressure when the key is entirely in the lock, otherwise it will immediately twist off. As stated previously: It is a matter of timing.

It is the best to attempt this with locks which run smoothly; you should also use a thin, fluid spray beforehand to wash out the lock and grease it well.

In the creation of a power key, you should use a key cutting machine in order to make the grooves all the same size. Look for a key with a deep incision and copy these incisions on your blank. With a computerized key cutter, you can program the groove height and the machine will finish it itself.



**Too steep of a point:
This key cannot be
removed from the
keyhole**

Too steep of a point:

This key cannot be removed from the keyhole.

You could also purchase such a key from a well-equipped specialty store.

If you don't have a key cutting machine, there is only one alternative left for you. You must file down the power key by hand. This is a chore which depends a lot on luck, because it is difficult to produce the height and position of the grooves exactly correctly.

With filing, one must absolutely pay attention to the incline of the point. If the last groove is too steep, then the power key will not be able to be removed from the keyhole.

Cylinder and no key?

Frequently, one finds a lock for which they can't find a key that will function. If it is a good solid piece, it would be a shame to ruin it. Many customers bring in the services of a good locksmith in order to produce another key for the lock. This demand is your right to make, even if it is hard to carry out. Normally, the key can be produced from the number that is stamped on the cylinder. If this is not the case, then the cylinder must be unlocked with picks. This is not always a lucrative choice when one considers how much time such a decision

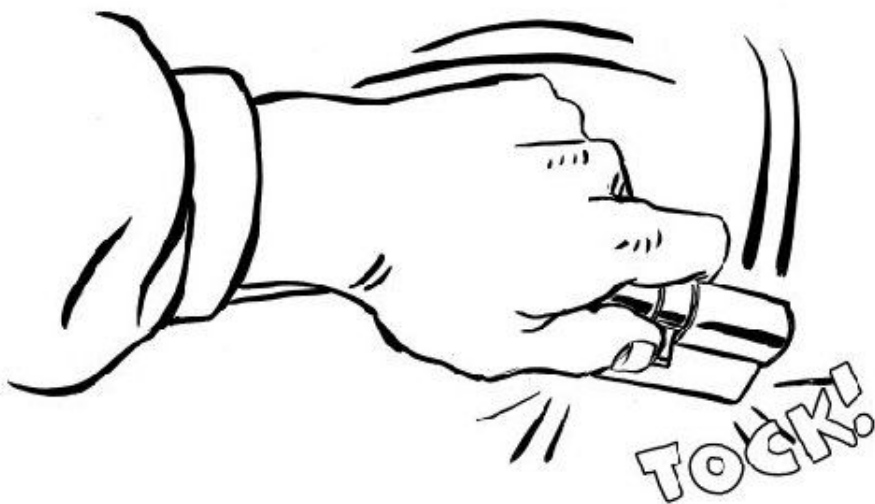
requires.

There will be a fantastic method shown in this chapter which often requires only a few seconds. It functions using the percussion principle as well, but this time in reverse. Here, the lock will be moved and the pins will remain in place.

Procedure:

Take the lock in your hand and hit it against a table or other solid object in a quick rhythm. Don't hit it too hard or else you will damage the lock. While you hit it, you must apply tension to the cylinder core by pushing against the lock nose with moderate strength with your finger.

A balance of strengths is required. Three important factors play together here. The force and frequency of the hitting must balance with the tension applied to the core.

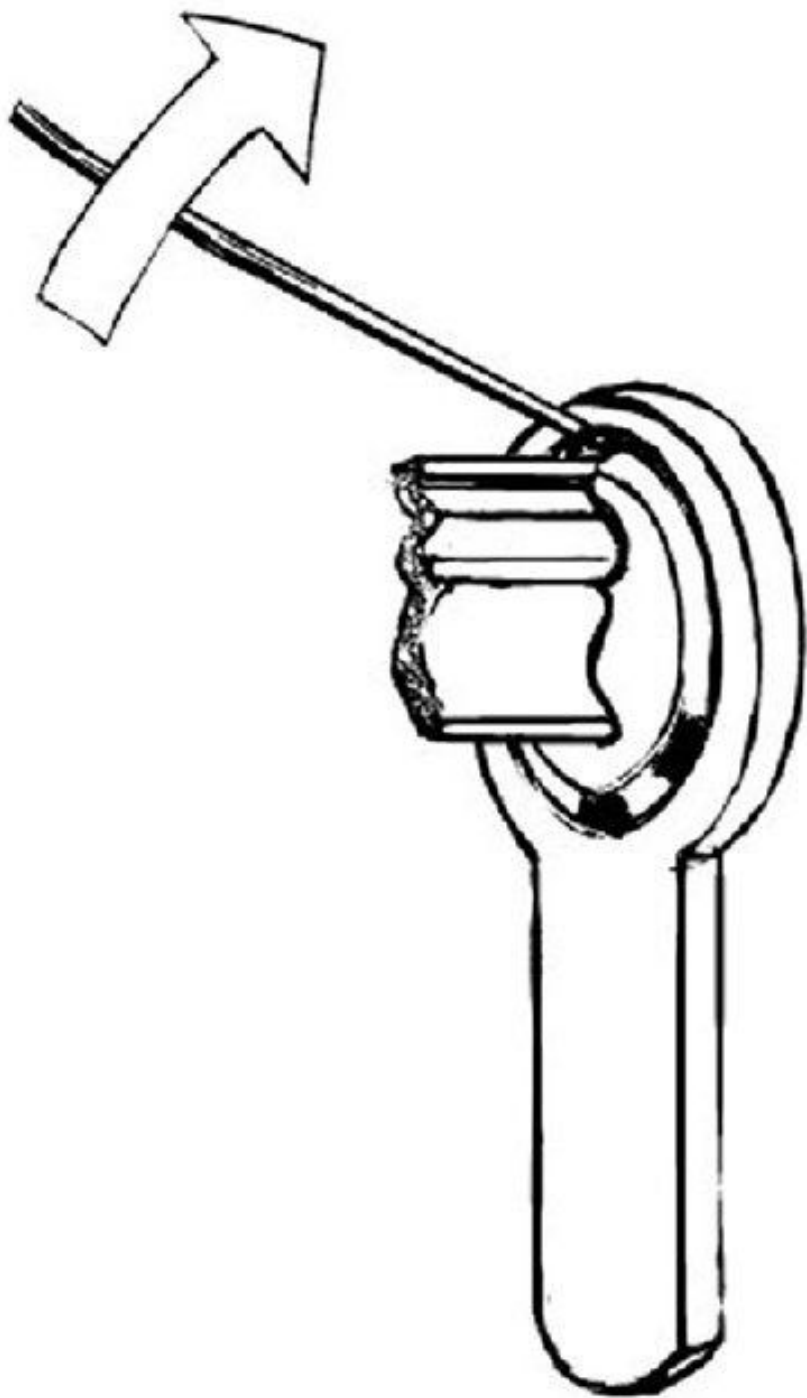


Push against lock nose and hit
cylinder against stable object

Broken Key

One short moment of carelessness and the key is broken. Perhaps the brass was already tearing or it was simply weakened from years of

use.



It's not a complete tragedy if half of the key is still in the lock. As long

as the half isn't totally within the key hole, this is no problem. If a small part is sticking out, you can use tweezers or the points of pliers to extract the rest.

A good way is to use a very pointy scribe to leverage the broken key out. Put the scribe on the upper-side of the back of the key at a very flat angle. Make sure that the point of the scribe doesn't push in the key piece. In this way, you can create a wonderful lever. Often this method also works when you insert a needle alongside the broken key in the key hole. If the broken piece moves enough, then you can use tweezers or sometimes even your fingers to finish extracting it.

Then there are the times when just the tip of the key has broken off and is stuck at the very end of the lock. The pins between you and the key piece have returned to position. The broken piece can't be removed from the key hole because the pins block the way. The pins must be pushed under in order to make removal possible.

For this job, you will need an extractor. This tool looks similar to a saw with a jagged edge at the back.

Insert the extractor into the key hole and push the pins as far down as possible. If you can manage it, hook the extractor under the first groove in the broken key piece and pull it out.

There are cases when matches or paper clips are stuck in the lock. With this tool you can remove all foreign objects without a problem which are in the cylinder, for whatever reason they're there.

Also use this tool with defective locking mechanisms, like when a thin plate (part of the cylinder mechanism) is stuck and blocks the system. In this case, it helps to extract the plate and replace the cylinder.

For very small key holes or for para-centric profiles, you should use a self-made tool. This tool is very simple but effective and you will require less than 10 minutes for assembly.

Dry lock

There's not always something really wrong when a cylinder won't turn or a key can't be inserted. Sometimes the situation has a very simple answer. Very often, the cylinder is simply dry and without lubrication. With a spray, the problem is quickly fixed. Spray multiple times into the lock and wash out the key hole with a thin, fluid oil.

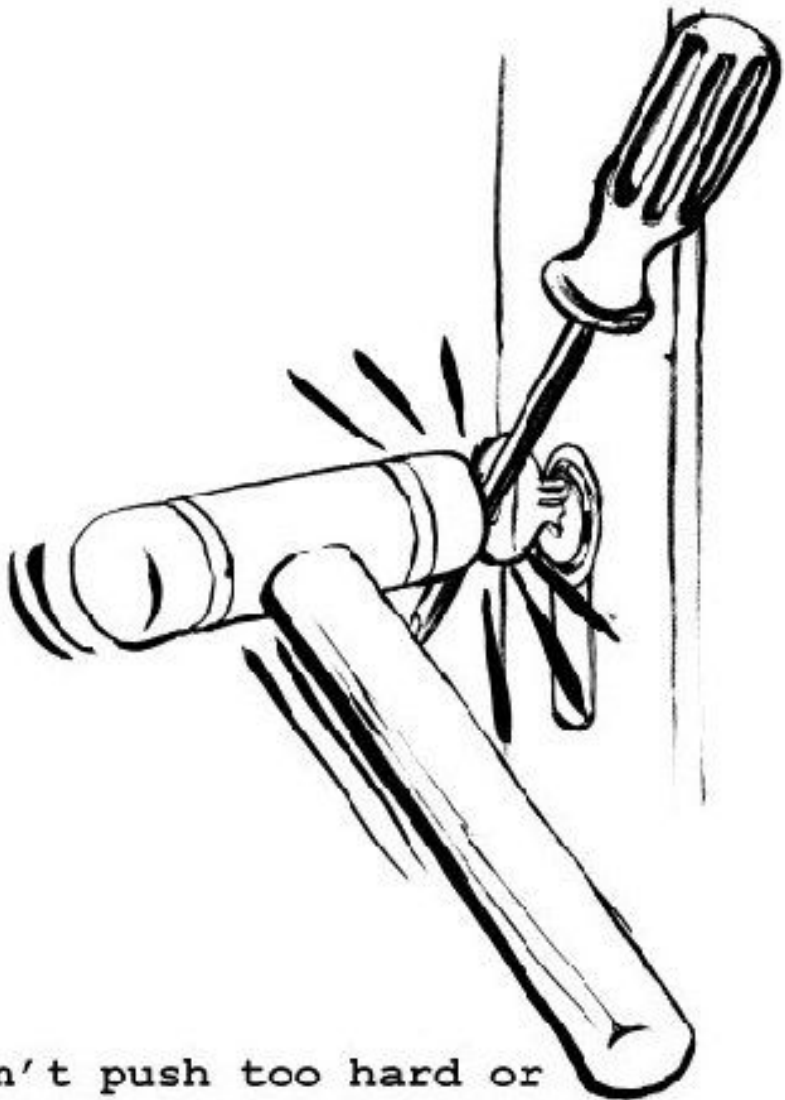
Stuck pin

A stuck pin can also block the system. The key can be inserted into the lock, but the cylinder won't turn. You have the feeling that you are using the wrong key.

The answer is also very easy here. After you've oiled the lock, insert the key fully into the cylinder. With two fingers, move the key very quickly from left to right and simultaneously tap with a small hammer on the key head.

This technique will often dislodge the stuck pin and the cylinder will function once again problem-free.

If your fingers aren't strong enough for this technique, then insert a screwdriver through the hole in the key head to increase the strength. But be careful not to break the key.



Don't push too hard or
else you will break the key

Smash Through

Normally, the cylinder is tightly inserted in the door (overall lock apparatus) and its lock nose is turned a few degrees. These two factors hold the lock tightly in the apparatus. To smash the lock through the door can be accomplished only through great strength and violence and guarantees to destroy a large portion of the door. Because of the large amount of damage caused by this technique, it is not recommended except in the most extreme situations, where

destruction of property plays no roll.

The author knows a variant of smashing through which is quite effective. The cylinder won't be smashed through, but rather shot through. You need some kind of shooting apparatus (gun) with a very strong bullet.

There won't be a projectile object fired from the gun, but rather the steel bullet will be shot with a large amount of force only some centimeters out of the barrel. You merely must hold the barrel against the cylinder and shoot. The strength of the explosion will send the cylinder flying through the door.

Because there is a great amount of safety risk, one should complete this only with the utmost care and under extremely safe conditions, and by a practiced professional!

Attention:

Note the purchasing or possession laws of your location. It is not legal to buy or use these machines everywhere.

Safety Rosettes

In order to protect cylinders within a spring lock system, often safety rosettes are mounted in various forms. The visual appearance has almost no relevance for this safety feature.

Real safety rosettes of steel cannot be uninstalled from outside. They are drilled from inside and are shaped like a steep cone to avoid being removed by pliers or another tool. Every tool will slip immediately.

You must not destroy the cylinder as a result of the safety rosettes because there is a good way to get rid of them. Position the drill (5-6mm) above the cylinder and drill steeply downwards past the rosettes. Drill as closely to the rosettes as possible, but without damaging them. At first begin through the wood, then through the metal plate of the lock apparatus.

If you have estimated the angle correctly and drilled carefully, especially on the way in, then the mechanism of the lock apparatus now lays exposed before you. A strong flashlight will show you the way.

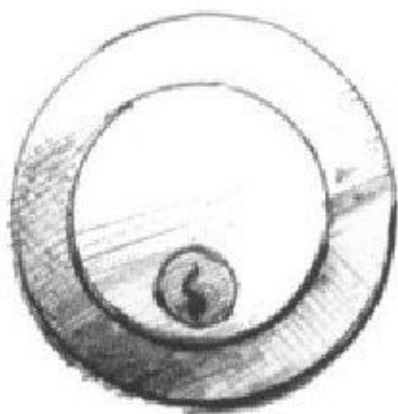
Exact introduction to drilling: Chapter - "Lock apparatus drilling"

Not all rosettes without visible screws are really safety rosettes. The simplest models are only for decoration and have been made out of the same material as the cover plate in order to make the screws of the cylinder invisible. The plate is easily removed with a screwdriver and then the cylinder stands free.

The Auxiliary Lock

In order to protect against break-ins, often an auxiliary or secondary lock is installed. It is commonly located at eye-level, above the primary lock.

The entire lock system is located within the lock casing which is located on the inner side of the door and only a round external cylinder with a cover ring (round or square) is visible from outside.



The auxiliary lock is easy to recognize by its round cylinder

If it is a cylinder lock, it can be picked with picks if one possesses enough experience. If this doesn't work, then it must be destroyed. You could drill out the external cylinder in the same way as other cylinder locks in that you drill away the pins (see chapter "Cylinder Lock"). However, there are other faster and simpler methods to remove the entire cylinder.

Unknown Model:

If you are uncertain where exactly the fastening screws are located because you are not familiar with this type of lock or the drill was stripping, then there is a very good method of removing the cylinder.

Many technicians use this variant because it is easy to employ and protects the drill.

You must drill two 5 mm holes through the cylinder. The holes should be as far out along the round of the cylinder as possible and with the farthest distance possible between each other, but there must remain a few millimeters of “flesh” in order to prevent missing. If you happen to find the screws, ignore them and continue drilling until you have completed drilling through the cylinder.

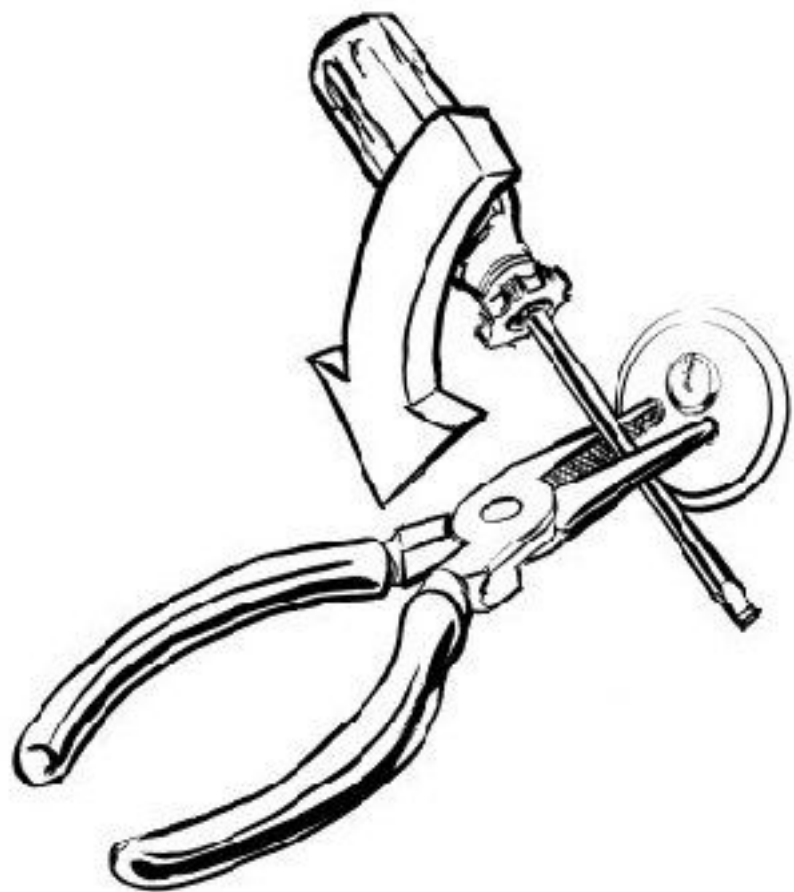


**Ideal placement
of the two drill
holes through
the external**

Insert a pair of dull round pliers into the two holes and add a very strong screwdriver which will act as a lever. The next step is to apply alternating pressure to the screwdriver left and right and twist. With each direction shift, the stability of the screws is compromised until they ultimately break. This will happen usually around the tenth time, but it can sometimes require more time if the screws are of a very good quality.

Difficulties can appear if the cylinder isn't mounted directly on the ground plate of the lock apparatus, but rather on its own mounting plate, which occurs often in the older models. It can then happen that the cylinder rotates with you.

You can still save this situation if you apply not only pressure left to right, but also up and down firmly against the cylinder with the pliers. Through this, friction is levered against the mounting plate.

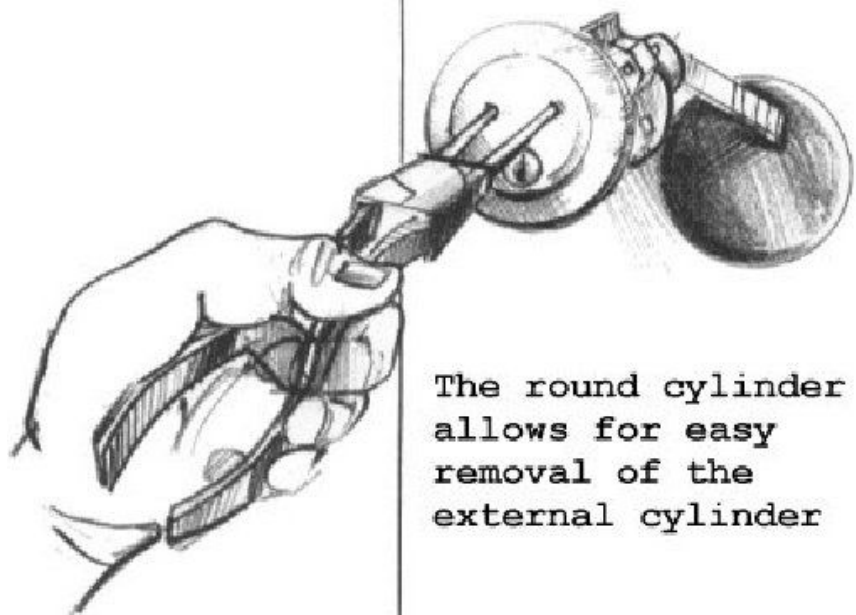


Rotate firmly left a few times

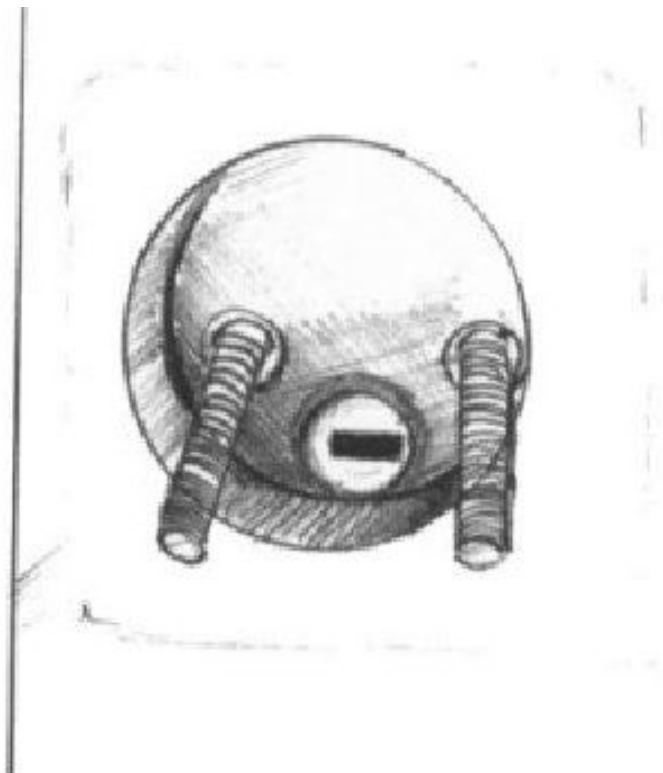


Rotate firmly right a few times

After both of the screws have broken, the external cylinder will fall out of the door of its own accord. If it doesn't do this, then remove it very gently with the pliers. You will then see the ground plate of the lock apparatus with two torn screw stumps. In the middle, you will see a small metal plate with a slit within which the disc of the outer cylinder is normally inserted. Turn this slit with your screwdriver and open the lock!



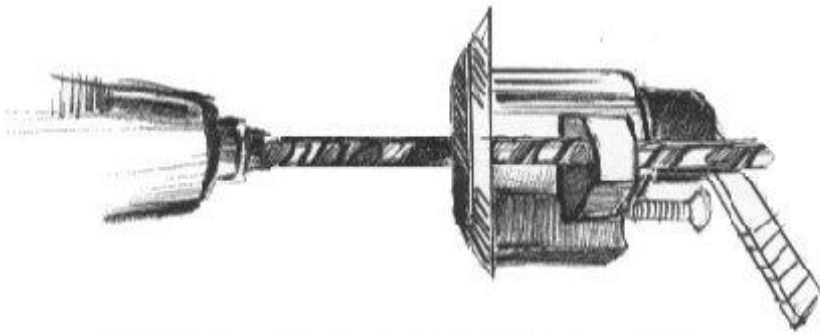
The round cylinder
allows for easy
removal of the
external cylinder



The slit in the plate is
easy to see - you insert
the screwdriver here

Known Model:

Because the outer cylinder is only secured with two screws, it is possible to remove the entire lock with two 5 mm holes. You simply have to know where the holes should be made, in other words, exactly where the fastening screws are located. If you must open auxiliary locks often, it is recommended that you make yourself a drilling jig.



Drill through the cylinder and
the screw sockets from the front

Position the drill from outside and drill through the cylinder. The brass of the cylinder is no problem for a sharp drill. The drill point should stand exactly over the fastening screws. Drill further and wear away the screws. Be careful that the drill doesn't strip or break. The goal destination of this drilling is the screw sockets in the cylinder. The holes must be deep enough that the screw sockets are entirely drilled away and the fastening screws are no longer bound to the cylinder.

You can then remove the cylinder by hand, if it doesn't fall out of its own accord.

You will then see the ground plate of the lock apparatus with the two torn screw stumps.

A small hindrance can be when the screw head stands out somewhat from the ground plate and blocks the spring bolt. To solve this you must correctly position the screw with small pliers. The bolt can then move unhindered over the head of the screw.

Drilling away the ring

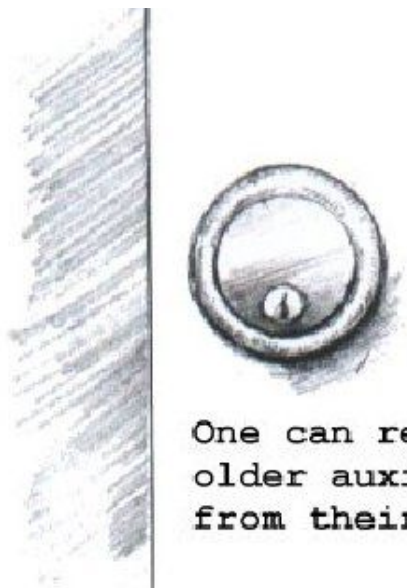
With older auxiliary locks, the cover ring wasn't made out of massive steel, but rather brass or sheet metal. Such a ring is then very simple to destroy, allowing you access to the rest of the lock.

Without this domed ring, the external cylinder stands a few millimeters away from the door. This distance is enough to squeeze in

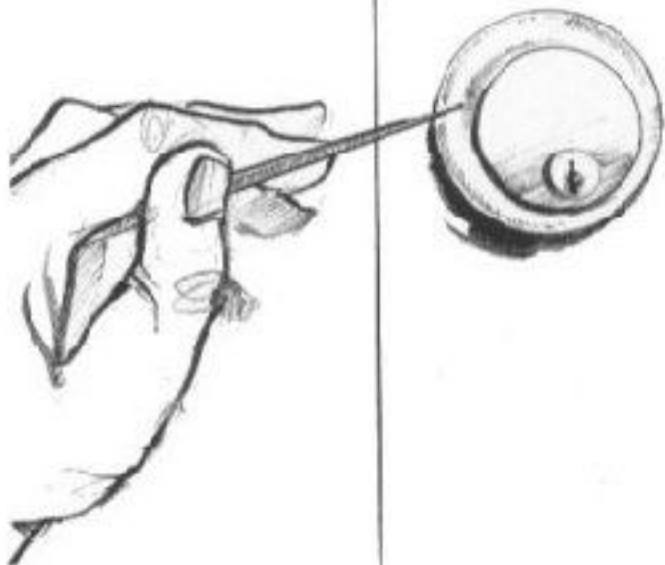
a large set of pliers (fitting pliers) and turn until the screws break. This also allows you to proceed without destroying the cylinder. You merely need to replace the ring and the screws in order to repair the lock, but no new cylinder is needed.

Removal of the Ring:

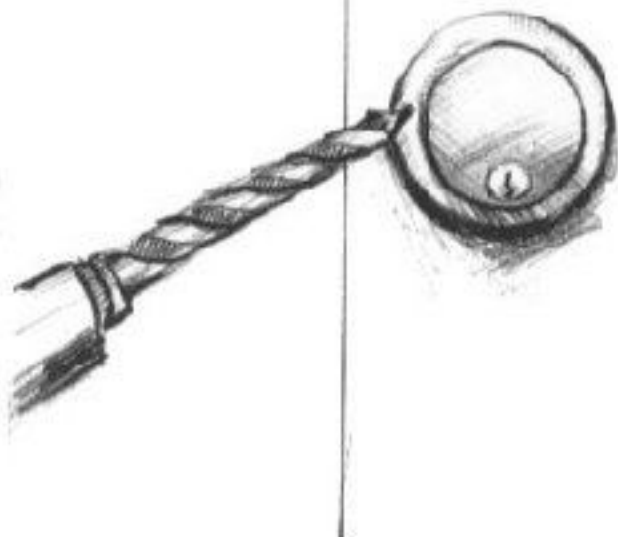
In order to avoid drill slippage, dent the ring exactly in the middle with a sharp point. A sharp file should do the job. Place a 5-6mm drill bit in this dent and drill through the ring. Because the drill has a smaller diameter than the ring, it will not entirely separate the ring, but rather there will be two sections on either side which can be easily removed by moving the drill slightly. You can also remove them with a sharp chisel.



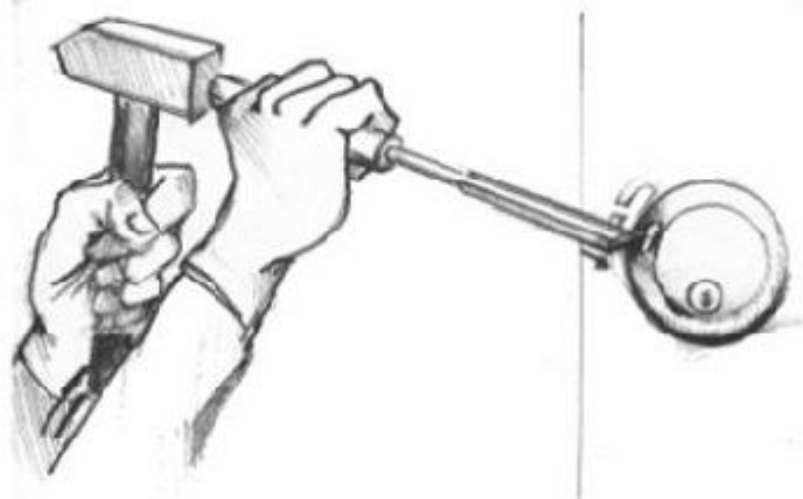
One can recognize
older auxiliary locks
from their cover ring.



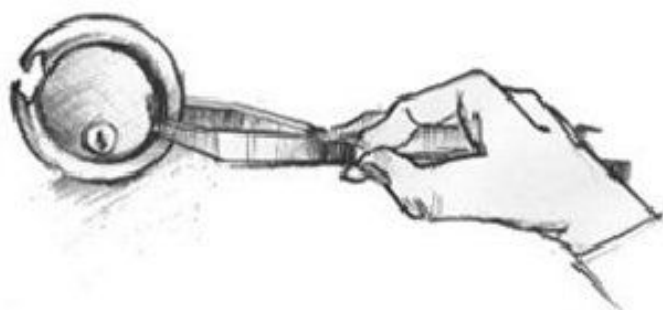
Make a dent in the middle
of the ring with a sharp scribe



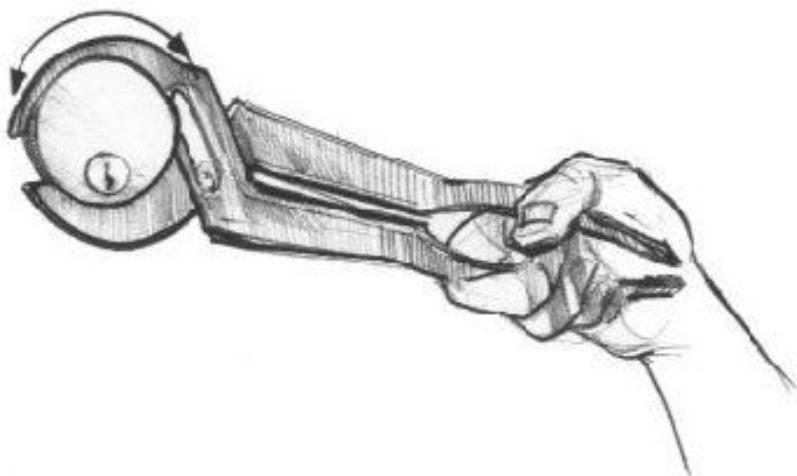
Carefully drill through
the ring.



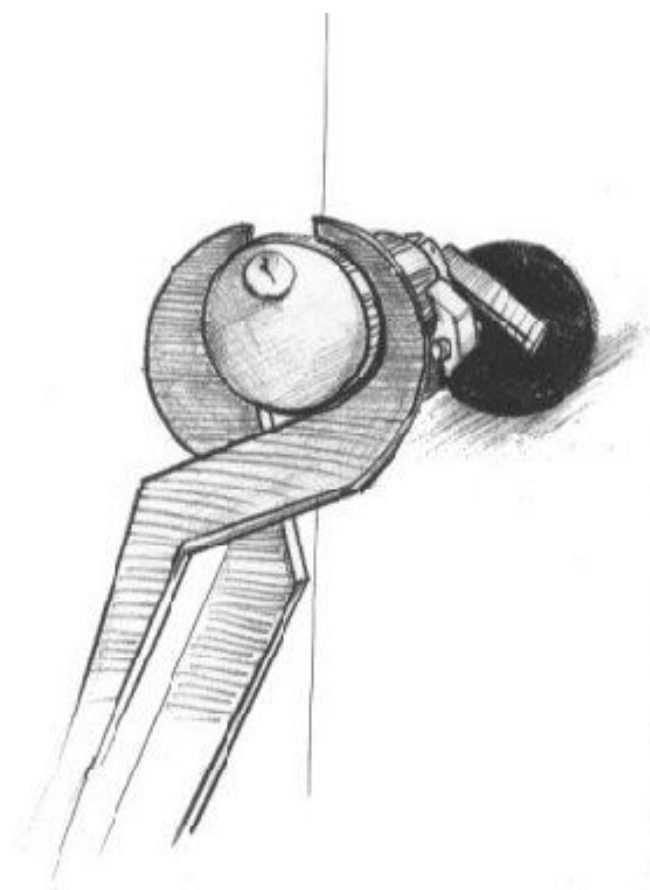
You can easily separate
the ring with a sharp chisel



Separated rings allow
themselves to be easily
removed using pliers
or a strong pair of tweezers



With large pipe pliers, grip the cylinder lightly and rotate left and right alternatively



After several rotations, the screws will break and the cylinder will allow itself to be removed from the door

Many spring locks can also be opened in this way, making it unnecessary to break the fastening screws of the cylinder.

Old Doors – New Lock?

For this method, you have to absolutely be familiar with the construction of auxiliary locks to proceed.

There are situations where it is better to damage the door than the lock. For example, if it is an exotic type of lock for which it will be impossible to find a replacement cylinder, if the outer cylinder is very

expensive... The list goes on.

Drill through the door!

What looks unprofessional at first can actually be a good solution. Perhaps the door is not pretty anymore anyway and has many cracks and flaws.

When it is a standard wood-material (oak, beech, ash) then it is easy to patch up the hole later with liquid wood (plastic wood) and make it nearly invisible.

The point of the hole is to gain access to the lock apparatus.

You must drill through the door and ground plate of the casing over the cylinder. Angle the drill lightly downwards in order to get to the right place. The ideal point is where you can lift the tumbler and push the spring bolt. You should decide how steep of an angle to drill once you know approximately how strong the door is. In emergencies, estimate.

To make for comfortable working conditions, use at least a 6 mm drill bit, but preferably 8mm.

Drilling carefully, especially through the ground plate, is very important, otherwise the whole lock could be damaged.

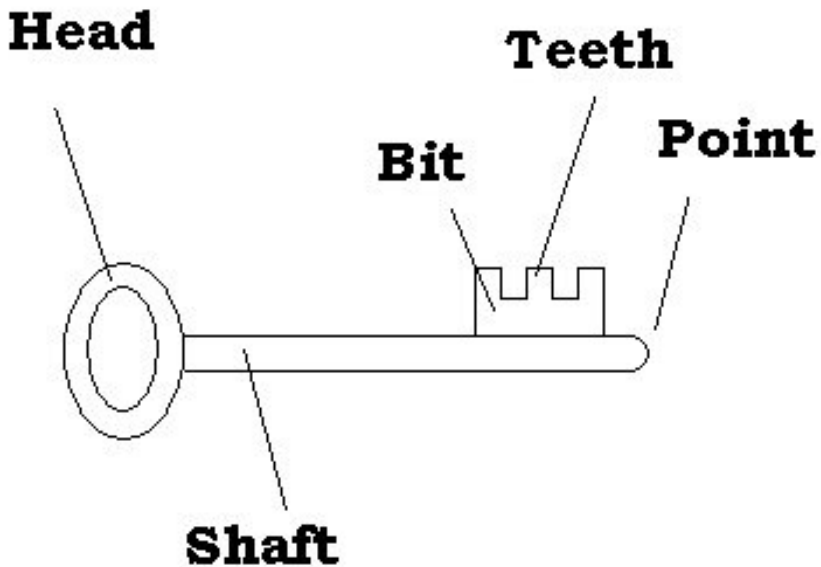
Exotic Locks

Rarely, but sometimes, you come across locks which have been extinct for a long time. The majority of these locks allow themselves to be unlocked with a knob, olive, or lever from the inner side. Before you go through the troublesome work of drilling through the lock, it is a perfect situation within which to drill through the door and manipulate the mechanism with a curved rod or similar tool. Perhaps it is even possible with a finger.

The hole can be easily filled with a piece of wood and then covered with plastic wood. If the door is somewhat old (100 years is not rare), it will be practically invisible.

Warded Locks

Everyone knows this type of key and everyone has one somewhere that they still use. Warded locks are very common. They are there for practically every type of security demand. They are used everywhere from on simple internal doors to vault locks, as the principle remains always the same.



Frequently used are:

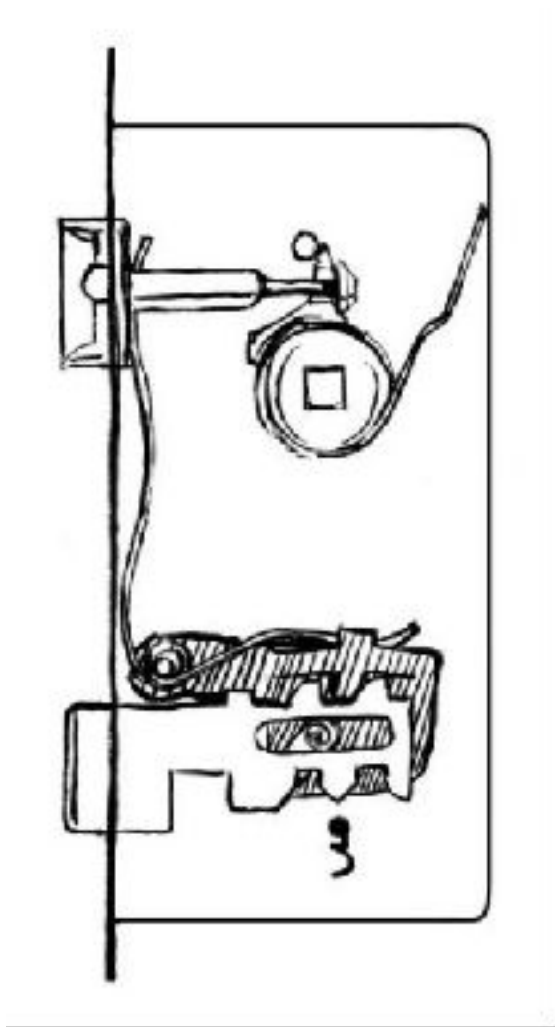
- Variegated Warded Locks
- Compliment locks or
- Half-Chubb Warded Lock
- Double Warded Locks
- Chubb Locks

Variegated Warded Lock

This is a very simple lock that doesn't provide any special challenges

to a locksmith. If the rake tool fits in the key hole, in almost every case it will be able to manipulate the lock. The keys are only different in their confirmation and are called Variegated Warded Keys. From manufacturer to manufacturer the locks only vary in the spike strength, bit height and bit width of the applicable key, but not in your procedure.

Every warded lock functions the same: The key raises a spring-tensioned tumbler and moves the bolt.

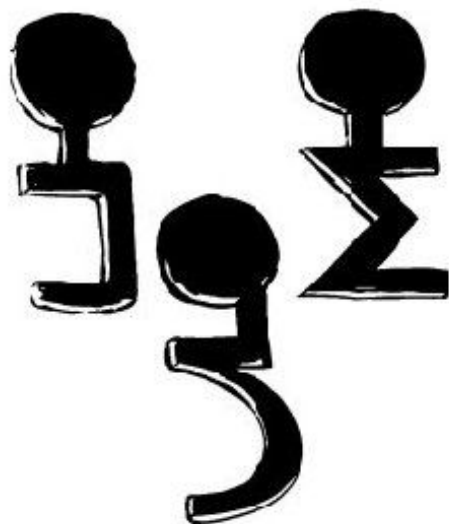


The only security feature that this lock provides is that not every key fits within the keyhole. The cover plate is like a template. From the approximately 60 different types of key confirmations, at least half are “extinct”.

However, one can combat this security measure fairly easily by using a skeleton key which passes easily through all key holes.

One finds these simple locks often on interior doors within buildings or apartments, and overall where high security is not required.

A look into the key hole is enough to confirm that you are dealing with a Variegated Warded Lock.



Approximately 60
forms are known

Procedure:

Insert a flat rake into the lock and rotate this until the bit stands nearly vertical. Now simply lift the rake high so that the bit lifts the tumbler. You can clearly feel the spring tension. The skeleton key can now move the spring bolt because the tumbler is out of the way. With a little practice, you can open a variegated warded lock with a rake just as you would with the original key because it is so easy.

The rake can be notably smaller than the original key and still be able to circumvent the mechanics.



Normal variegated
warded lock key

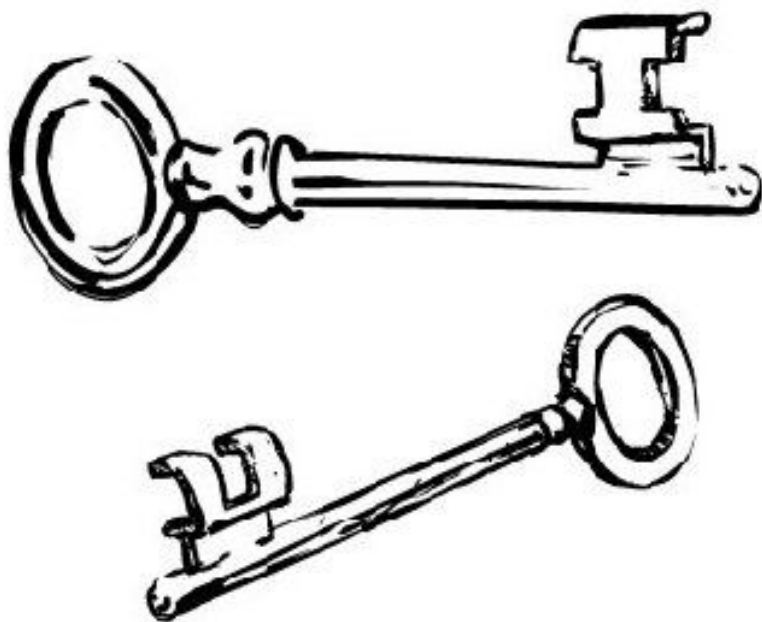
If you are lucky, you might even be able to find a finished key in an iron shop available to buy. You only need to make a sketch and compare it with the list at the store. Under the circumstances, you will want to file it somewhat smaller – and then will lock!

Possible Hindrances

If the manufacturer has applied other safety measures, then the unlocking of a warded lock doesn't go as quickly.

Adjustments for fractures

Fractures are security features which have been worked into the lock to prevent simply any key which fits into the lock from being able to turn.



You will notice immediately when you insert the skeleton key into the lock and after a slight rotational movement, there are fractures – the rake remains in place.

These are named fracture or compliment locks. It is not always easy to identify them from the outside because they look exactly the same as a normal variegated warded lock.

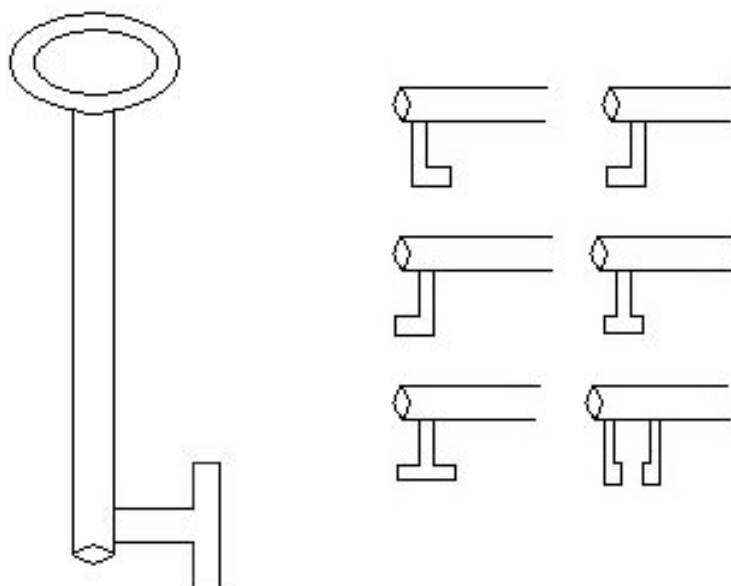
The correct key has a slit in which the compliment fits perfectly and thereby allows the key to turn. This could be made out of two or more grooves.

These locks are used less and less; they exist now really only in old schools, hostels, and similar buildings.



Simple rake

For a good technician, this is an easily surmounted obstacle. With a set of different rakes, it is no problem to open a warded lock with fractures. The rakes should have various bit heights and widths in order to open the largest number of models possible.



Possible forms of rakes

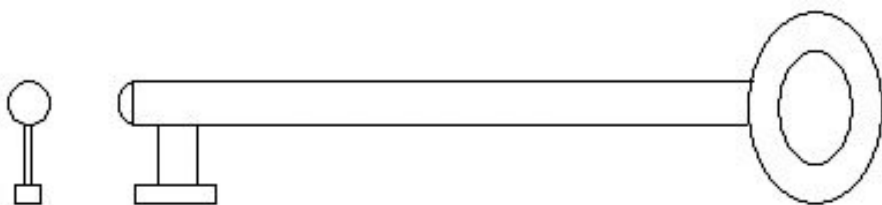
You could purchase many of these rakes, but in order to be prepared for all situations, you have no choice but to manufacture and file down a group yourself.

Warded Locks with Illusions

With standard interior doors, there have often been warded locks installed which look more complicated than they are. Often, the key number is stamped on the cover, which is logically only visible when the door is open. The key also has a stamped number, vertical slits and appear similar to a Chubb key. However, this is no more than illusion. Internally, this is an entirely standard warded lock; the key's slits are without function. The only security measure is that the keys have various positions of the grooves on the bit.

To unlock these locks is very simple if you have filed an original key very thin in order to fit in the key hole.

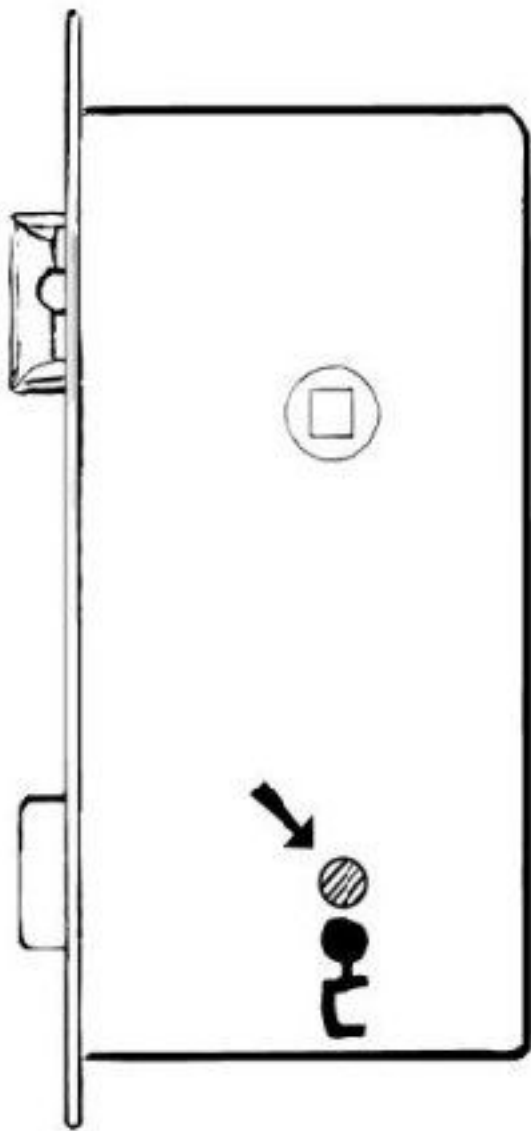
It is ideal if you manufacture an elegant skeleton key which functions almost as a universal key.



With such a skeleton key, you will be able to open nearly all illusion or half-Chubb locks.

Drilling always helps!

If you can't unlock the lock with a rake, then you must use another technique. Take a drill and drill a 6 mm large hole through the sheet metal of the lock apparatus about a centimeter above the key hole.



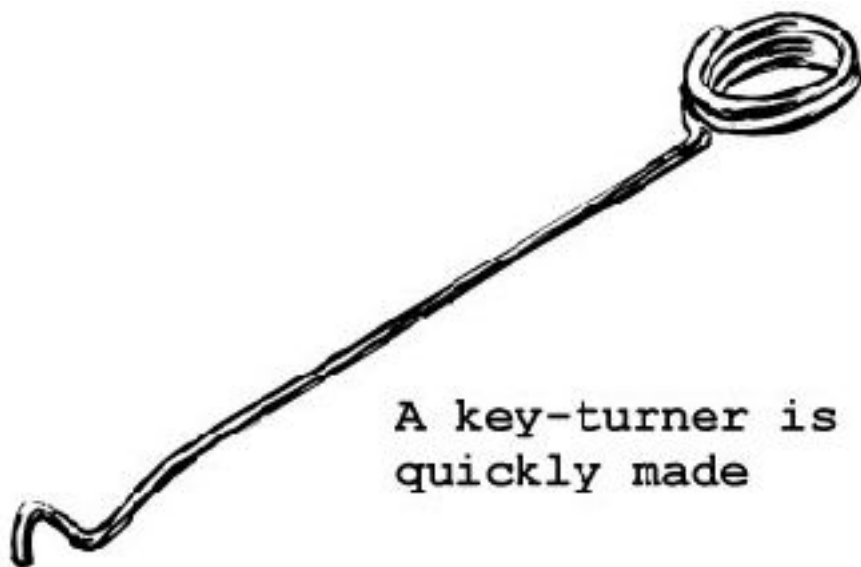
Of course, you have removed the cover plate beforehand. Be careful when drilling through the thin material or else you will destroy the locking mechanism. Use a flashlight to see in the newly-made hole and locate the tumbler and the spring bolt. These two parts will normally be moved with the key. Your job is now to do that yourself.

Insert a thin screwdriver or scribe into the hole, lift the tumbler, and push the spring bolt back.

With a little luck you can accomplish both of these steps using only one tool. However, if the spring tension on the tumbler is unusually strong, you can use a second scribe. It will be enough if you can move the spring bolt a tiny bit, just until the spring gives way. Now let the spring finish the work for you and you can let the tumbler snap back.

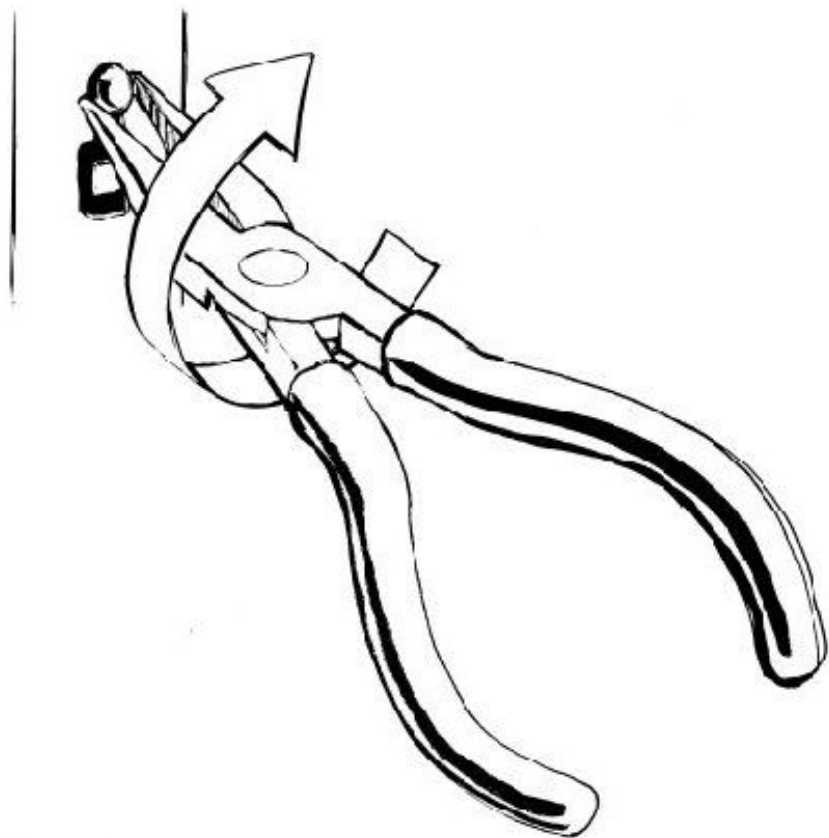
Key stuck inside

With warded locks, it is possible to twist the key from outside even if it is stuck on the inside.



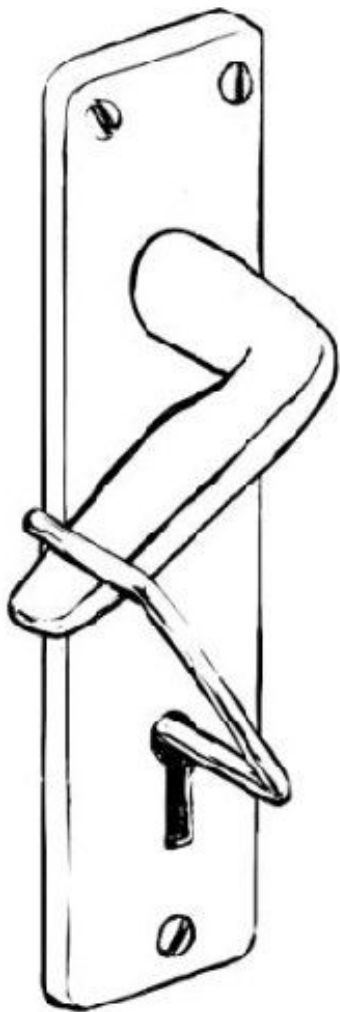
If the point is sticking far enough outside of the lock apparatus, then it is possible to accomplish this with a pair of thin pliers. Concave, flat nosed pliers will make it easy to grip the shaft. If there is not enough space or it isn't sticking out far enough, you will have to use a key-turner. With this tool, it should be no problem to turn the key.

You should note that models vary in that they could rotate right or left.



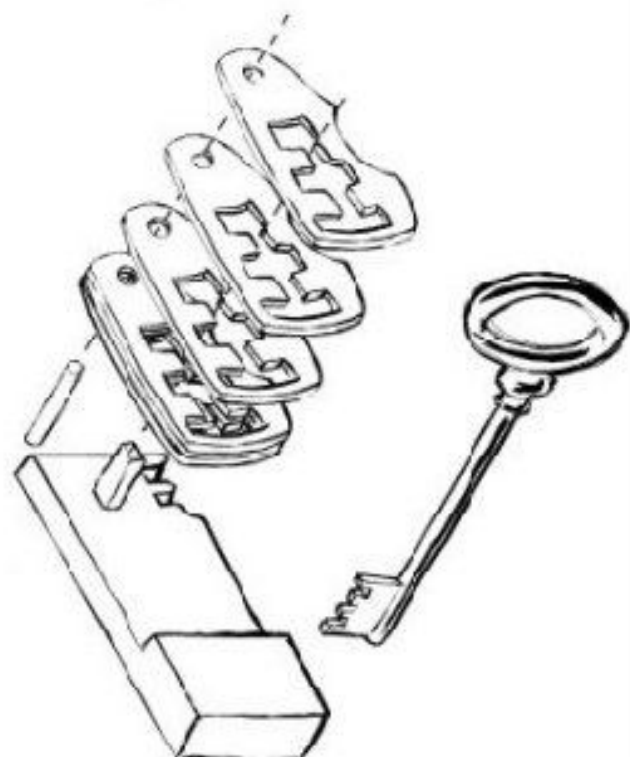
With pliers, a warded key
can often be turned easily

Handle pushing



A piece of
piping is
enough to
build some tools

With a specially bent rake, you can also use the handle from outside. This is somewhat easier with double warded lock because the keyhole is larger. With a little luck, this method can also be successful with warded locks and Chubb locks.



Chubb Locks

This was invented by the Englander Jeremiah Chubb (pronounced: Shabb) in 1818 and named after him. It had a lock mechanism not accessible from outside which only the precisely correct key could unlock.

Chubb was so certain of the high security level of his lock that he offered a reward of 1000 pounds for anyone who could open it without the key and without violence. He lost his money rather quickly to an American named Hobbs who gained the large sum. Hobbs, an experienced technician, had invented the ingenious pick named the Hobbs Rake.

But because Chubb was a smart man, he didn't allow this set-back to discourage him, but rather learned from Hobbs and improved his lock. He soon had removed the weaknesses and his became the safest of locks.

His lock quickly became the standard model used for vaults and anywhere that high security was desired.

Over time, the Chubb lock has received other names like the tumbler lock or disc lock, but it refers always to the same.

Construction:

The simplest way to understand a Chubb lock is to analyze one and look at exactly how it works. The ingenuity is in the simplicity of the mechanism. Ask in a specialty shop; most of them have copious amounts of unneeded or broken locks that they will willingly give to you for little or no money.

A damaged lock is a good choice because you will likely receive it for free, and in repairing it, you will learn exactly how it functions. This knowledge will help you incredibly with lock-picking. And it is also fun if you can fix it and make it work again.

Inexact features and tolerances:

Because of the number of tumblers and their respective heights, there are an enormous amount of possibilities in a Chubb lock. With five discs, each with five heights, there are already 3,125 different variations. This number increases exponentially as one adds more components.

As it stands, that would be impossible to pick, if there weren't various imperfections that came into play:

The pin guide has air in the canal, the bearing socket of the disc isn't exactly precise and some other inexact qualities from production add together.

These mistakes are enough to make it possible to pick a Chubb lock.

Raking

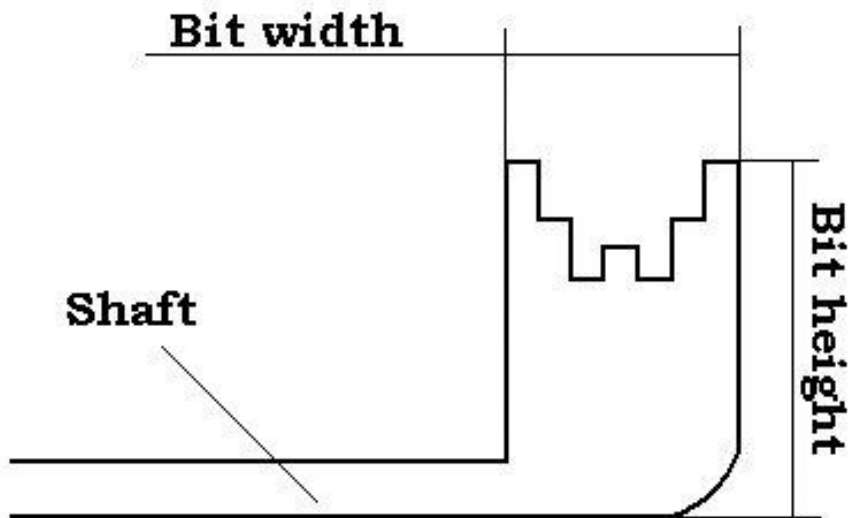
Without production imperfections, you'd need to carry around a gigantic ring of rakes in order to open a Chubb lock. In reality it would be impractical, and luckily a few dozen should do it, which are heavy enough, but without which you shouldn't be able to imagine your daily practice.

Unfortunately, the number of various models is enormous, and therefore you need to stock up on more skeleton keys if you wish to pick Chubb locks often. You can purchase pre-made rakes in specialty stores, but for all older or rarer makes, you will probably not find what you're looking for.

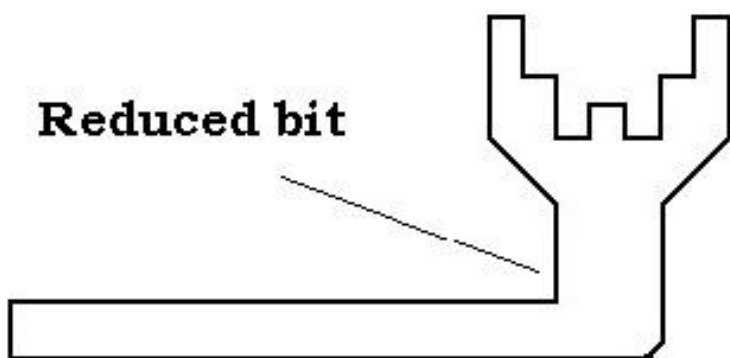
How much time you want to invest and whether or not the trouble is worthwhile is something which only you can decide. It depends on whether you want to help your neighbor once or become a locksmith. In this case, you can't skip over this. But you should figure out which Chubb locks are mounted in your town. It will probably make no sense to be prepared for exotic types.

These are the varying ground factors of production and usage:

- Number of tumblers
- Height of the bit
- Width of the bit
- Strength of the shaft



The bit should be made smaller in order to pick locks with fractures. But don't make it too much smaller or else the skeleton key will lose its strength and break.

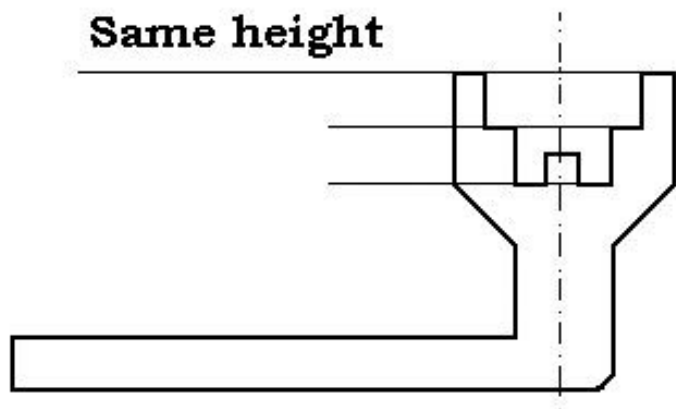


In order to be able to insert the rake into every key hole, forge the three centimeter front bit and the shaft flat.

Pay attention to symmetry

The rakes are made with a middle axis of symmetry. This means that the points which are directly opposite one another are of the same height. Only the middle groove is unique and mustn't be identical to

anything else.



Make an entire group for one specific type of lock, so that the height of the outmost prongs is the same with all the rakes of this group, because they will always push the bolt.

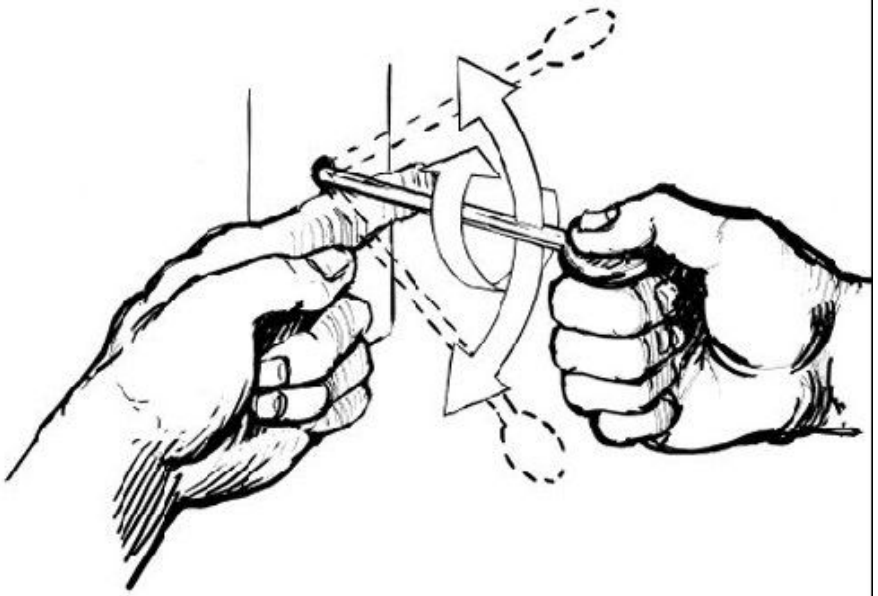
With the heights of the other grooves, a few millimeter alterations will suffice.

For a Chubb lock with five tumblers and one bolt, the rake must have not six but seven prongs, because one of them is without function. The reason for this is that the bolt is exactly the strength of the first two tumbler discs. Therefore, one can use the key from both sides.

Shake with the skeleton key!

The correct manipulation of a rake is not easy and requires practice. It isn't enough simply to insert the skeleton key into the keyhole and turn. The movement that you must create won't feel like that of a normal key movement, but rather like a "jerk." The rake must be moved back and forth very quickly and thereby rotate - a quick shake-rotation movement.

The best way to do this is to lay the skeleton key on your pointer finger and do the shake movement with the other hand. Through this, you can vibrate much quicker. Protect your pointer finger with a bandage or else it will be very quickly chafed. Every locksmith can sympathize with that.



Forget about trying to use a rake with high security locks, like those on vaults, money safes, gun cases, or other similar items. The locks on these cabinets could have up to 15 tumblers and are perfectly produced.

For vault locks and perfect safety locks, there is a type of wonder-weapon.

The Hobbs Pick

This is a very simple tool with an unbelievable effect. It consists of two pipes stuck precisely in one another which rotate independently of one another.



Thus is the universal key with adjustable heights. In this way, the spring bolt can be put under tension and yet each tumbler can be individually moved.

How does one use a Hobbs pick?

The functioning of the Hobbs pick is similar to that of picking a cylinder lock. The Hobbs pick consists of two independently movable pieces of pipe. One part applies tension to the spring bolt and the other lifts the tumblers. Due to the imperfections within the lock, one of the discs will begin as the first to grind and will be the most difficult to move (they bind), while the others set themselves only against the spring tension. If the tension applied to the spring bolt is too much, then the tumblers won't return to their original position because the chafing of the first plate is greater than the spring tension which wants to push the plates down. Give a little bit against the spring bolt and then the disc will fall immediately into place. This is a good way to filter out the correct disc.

This disc can only be lifted until it rests in the canal. When this happens, the spring bolt gives a little bit and the next disc has bound. In this way, you can proceed through all the tumblers one after another until you have unlocked the lock.

The theory sounds easier than it is in actuality because it is a difficult matter to equalize the two strengths. If you apply too much tension to the spring bolt, you block all of the discs. If the pressure isn't enough, you won't bind any of your tumblers together. You are required to have very fine feeling in order to be able to equalize these strength levels. However, once one has mastered this balance, they are able to open the majority of Chubb locks.

The picks will be categorized in two groups:

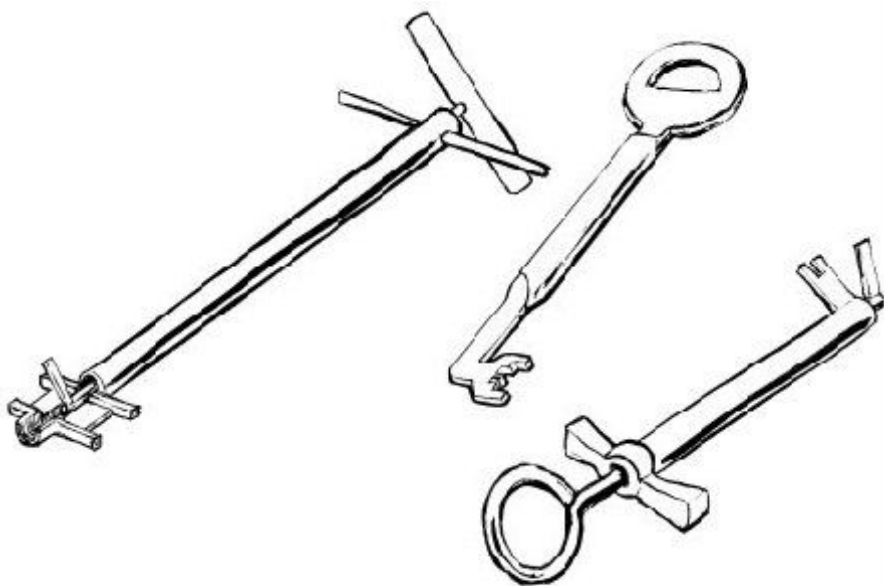
Drilled and un-drilled

Un-drilled Picks

Un-drilled tools should be used in locks where an un-drilled key would have been used. These are the Chubb locks which are normally installed on front doors. While unlocking, the key rests on the inner side and outer side of the lock apparatus and proceeds only through its own shaft. The pick tool must, therefore, function in the same manner in order to work optimally. With an un-drilled pick, the outer pipe takes the job of driving forward; it juts out a little over the bit. Three to five millimeters should be enough.

It is enough to create picks for the most popular two diameters – 5 and 6 millimeters. Other diameters are seldom seen in normal locks.

If you are aware of the exact type of lock for which you must build a pick, then you can complete a special tool which will make relocking the lock much easier. You are taking advantage of the fact that the spring bolt is exactly the same height as the first tumbler. Build a pick in a U-Form. The advantage of this tool is that the first tumbler will be raised to exactly the correct height when you apply pressure to the bolt.



Various Picking Tools:

Drilled pick for double bit

Normal Chubb lock pick

Hobbs pick with fork sensor

Drilled Picks

Keys with a drilled stalk (shaft) are mostly used with security locks and vaults. It is rare to find them in normal doors. The key will be inserted through a stalk found on the lock apparatus floor and rotate on that. This is a very exact procedure because the stalk and key often come together very precisely.

With a vault lock, you should use a Hobbs pick which has a scale. You can then gauge the height of the tumblers to 1/100 mm.

Drilling and De-springing

If you have attempted and failed with all of the previous methods, then the only thing left for you is the drill. You must “de-spring” the tumblers with a small screwdriver in order to make a clear way for the tour tumbler.

Because the tour tumbler is often riveted to the bolt in Chubb locks, one is in a different position with locks which have been locked once as opposed to twice. Because of this, it is unfortunately impossible to say exactly where the tour tumbler is.

However, because the majority of Chubb locks are built similarly, one can at least guess the position of the tumbler by looking at likely possibilities.

Normally the tour tumbler is located:

With twice-locked locks: Between the keyhole and the leading edge of the lock.

With once-locked locks: over the keyhole

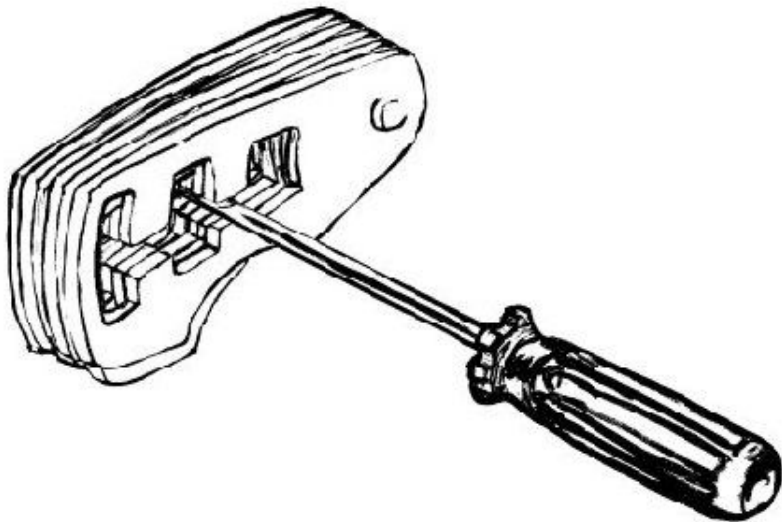
With opened locks: behind the keyhole

The height of the tumbler is generally the same: about one bit height away from the upper edge of the keyhole.

Caution: These particulars are purely estimations and every lock can radically vary!

In the rarest case, one drilled hole will be enough to fully unlock the lock. The more common procedure is that one hole is needed to remove the springs from the tumblers and another to manipulate the tour tumbler/bolt.

Begin with a kind of trial hole in order to become oriented and make out the tour tumbler.



Remove the springs of the
tumblers with a screwdriver

Drill away the tour tumbler!

One last option remains to save the situation if all else fails. Drill away the tour tumbler. Without this tumbler the bolt will push back easily and open the lock. One uses this method with damaged locks or when the tumblers are located behind the bolt and cannot be seen. Most can also effectively tell the position of the tumblers which are behind the bolt because they are riveted and one can clearly see the rivets. With one or two holes for orientation, you can find the correct place.

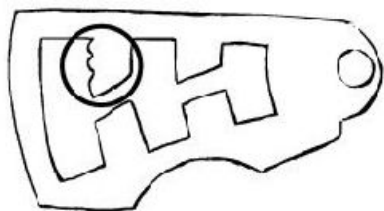
With a little luck, it will be possible just to install another tour tumbler and the lock will function once again.

Impasses and Illusions

Many Chubb locks have built-in safety measures to make the life of a lock-picker difficult. The most beloved protection is the construction of an “impassé.” The technician should be deceived that the tour tumbler has found its way into the canal. But after a few millimeters it stops – the tumblers stands still.

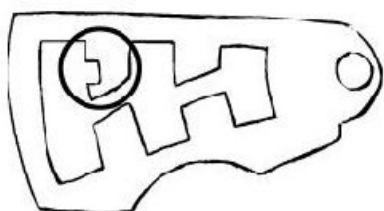
Two types of these illusions are known.

Grooves, which are only small troughs, and proper canals which are a few millimeters deep. The highest quality products often have both versions on a tumbler.



A fake:

**The tumbler is only
varied to be wave-like**



A real impasse

Such modified locks are much more difficult to pick than normal ones.

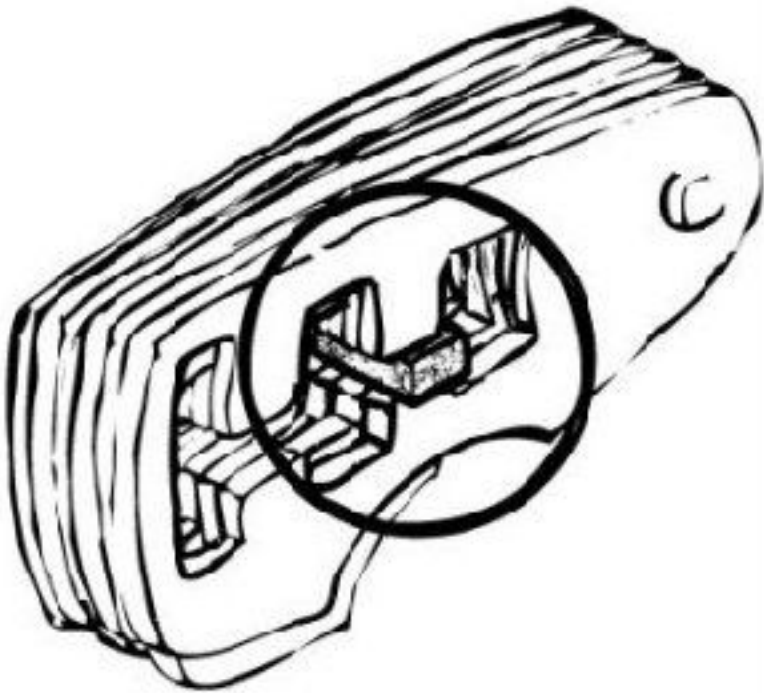
The problem of not knowing which tumbler is actually in an impasse can be solved using a Hobbs pick with a scale. When the bolt is trapped in the impasse and is blocked from being pushed any further, then note the amount and change the set amount of only one tumbler. The others will be lifted exactly to the same height. In this way it is possible through trial and error to find the modified tumbler.

Defect Chubb Locks

You have a key and despite this, cannot unlock the lock. Either you have the wrong key or there is a defect in the lock. These happen without warning and usually exactly when you need them the least. But many of these problems can be solved quickly by hand.

Half-tour

This is the most common defect seen among Chubb locks and has a natural cause. The key moves the bolt each time it locks or unlocks, and each time that it does that, it wears it a little away.

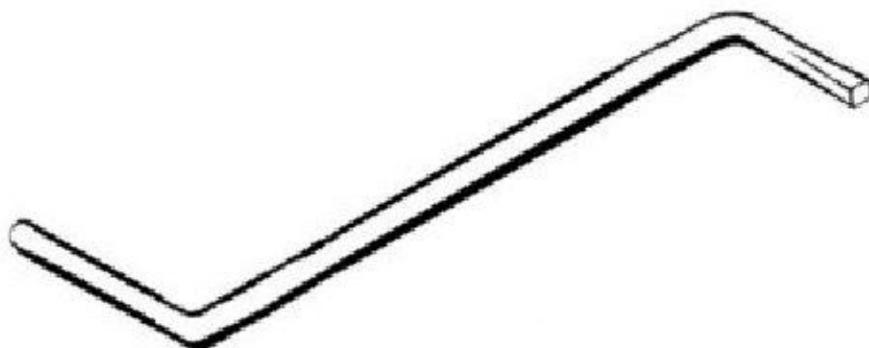


It is only microscopic amounts which are removed each time, but after years or decades, this amount adds up to significant chafing. At one point, it is too much. The key can lift the tumblers and move the bolt a little, but because of the wear and tear, the key loses contact from half the tour tumbler to the bolt and it slides free. The lock is half open and half closed. It is due to this “half-tour.” If you try once more to unlock, the key turns until it reaches the bolt, but can’t grip on. You feel no spring tension, only solid blockage. In this situation, you should never push hard! The key will break without fail and just complicate things. Instead of this, there is a simple tool which will easily solve this problem.

Special Tension Wrench

The tension wrench is a simple and good tool which looks similar to a simple pick. A 90° bent bar. You use the tension wrench like a simple pick. Find the mechanism of the bolt which the key usually catches and push the bolt back far enough to bring the tour tumbler together again. You will clearly hear the tumblers snap into place. Either the lock is open or you can proceed as you normally would have. This is

dependant on whether it was the first or second half of the tour tumbler which was defective.



With a special tension wrench,
you can reunite the tour tumbler
and easily move the bolt

Broken Springs

The tumbler springs are highly pressurized and likely to break. You will likely not notice this immediately because the weight of the tumblers cause them to sink regardless or they will be moved by neighboring discs. But it will become clear when the metal plates no longer glide back to their normal position. Then the lock cannot be opened. In 90% of cases, this is easily solved. Spray a little spray in the keyhole upwards from underneath between the tumblers and let the oil work in a little. A few bangs on the door (at the height of the defective lock) with a rubber mallet should be enough to cause the tumbler to sink. If you don't have a rubber mallet, use a normal hammer with a piece of wood as a buffer.

If this doesn't cause the disc to move, you have to drill a hole in the lock apparatus and push the tumbler down with a thin wire or a scriber. The exact positioning of the hole isn't important in this case. Drill a 6 mm hole approximately one and a half times the bit height above the key hole. You must be particularly careful drilling through the cover of the lock apparatus of Chubb locks in order to avoid damaging the insides!

You will probably discover the hanging disc immediately. Push it under with the scriber – done!

Dirt in the key

This defect can occur in all keys which have grooves. It's only a little thing, but it happens often enough to make it worthwhile to speak about in this book.

It is so banal that you will seldom think of it, but rather you will think there is a real defect or perhaps there was a break-in attempt which caused damage.

You wish to insert the key as normal and note that the key doesn't turn at all. You take the key out and insert it again a few times until you see that it isn't accomplishing anything. The key doesn't go all the way into the lock. After years of carrying it around with you in your pants pocket or purse, threads, dust particles, or simply dirt has worked its way into the grooves and blocked them. Even if it affects just a minute part of the key, it will not enter the lock or turn.

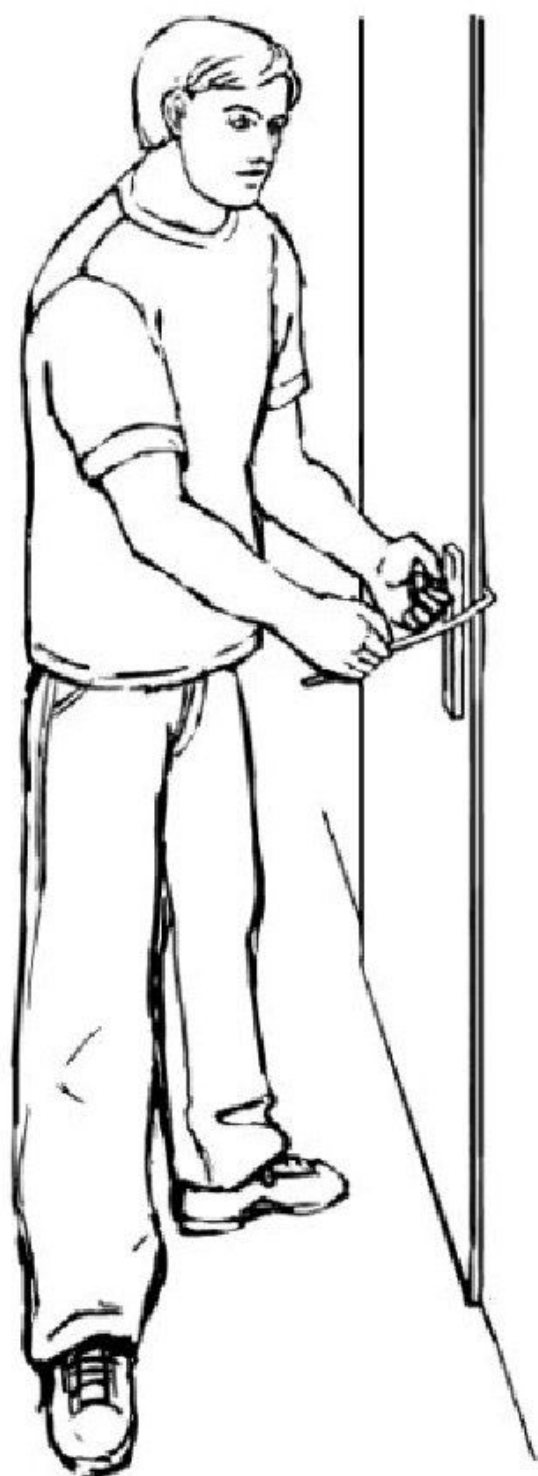
The solution is simple: Clean out the grooves in the key with a small drill. In the case that you don't have the correct drill, a small piece of wire will work. If the dirt isn't removed after the first attempt, you must continue until the key is entirely clean.

Broken key

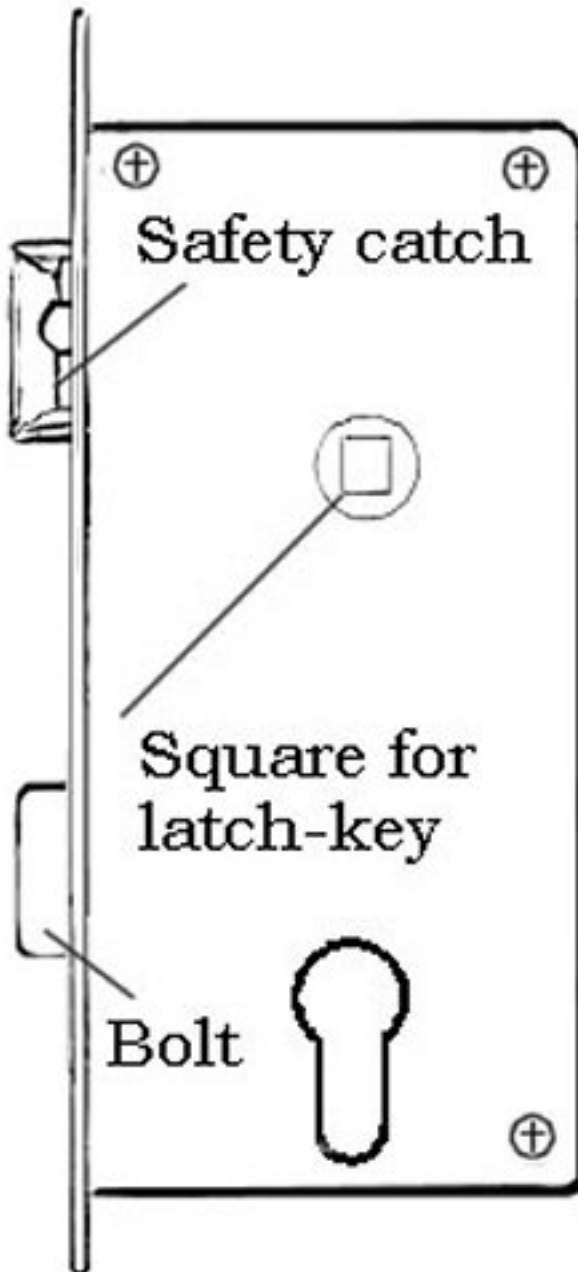
A broken bit isn't a disaster. Most of the time, just a point of the key is broken and this can be easily repaired. It is exactly the height of the point which lies opposite, assuming it is a normal Chubb lock. Go to a specialty store with the broken key and they can cut you a new key which is guaranteed to work.

The situation is more difficult if the middle point is broken. Then there is no comparison point to use.

Make a replacement key which mirrors points on the broken key, except for the middle point, which you should leave untouched. You must then continuously file down the middle point and try it in the lock until you have found the correct height. Don't file down more than once or twice in between attempts or else you will overshoot your goal and make the key useless. The key will eventually work.



The Pulled-Closed Door



This term refers to doors which are not locked, but

just

snapped shut. This means that only the safety catch stands in the way of opening the door. The safety catch is a small, beveled thing which snap shut when the door is pulled closed. The majority of doors with built-in locks have the safety catch located a little bit above the removable pin (from the middle of the removable pin to the middle of the safety catch is between 18 and 22 millimeters).

What is normally unlocked with a quarter-turn of the key can be a large problem without the key.

The path of least resistance should always be attempted first, meaning in this case, simply to push the safety catch back into place.

That is the easiest way to open the door. Most of the time it will also go quickly and save costly time. In the following paragraphs, various methods will be shown and clarified.

The method you ultimately choose will be dependant upon the specific factors of your situation.

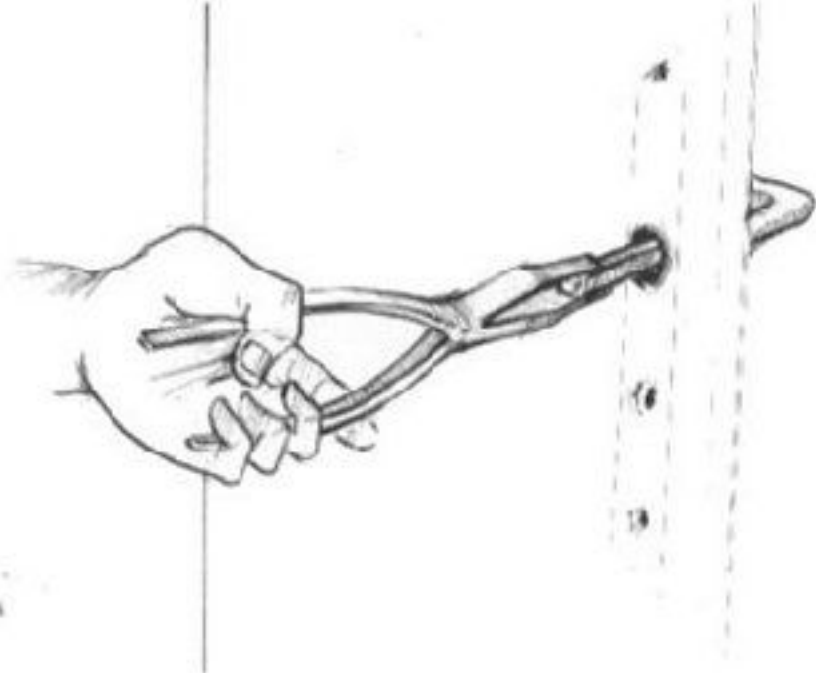
The Removable Pin Method



The simplest method to open a closed-over door is to rotate the removable pin, if one refrains from the manipulation of the latch-key. It doesn't matter if it is a cylinder lock, bit lock, or another type of lock. The only requirement is that the cover plate can be removed in order to gain access to the removable pin

You must first unscrew the cover plate or drill away the rivets. The rivets can be easily reinstalled with a pair of rivet pliers.

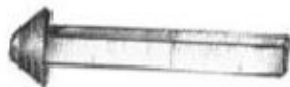
As soon as the cover plate is removed, you will see the removable pin, which in the best case scenario is square and sticks out a little. It can be turned easily with flat-nosed pliers.



If the square pin sticks
out from the door, it can
be very easily rotated

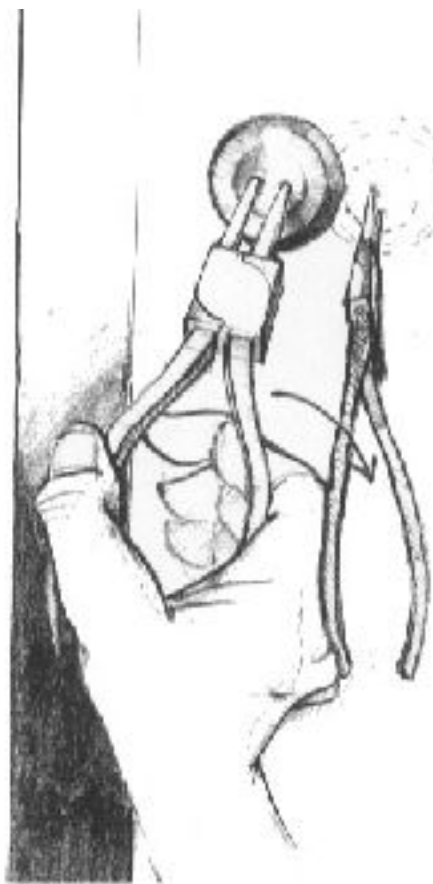
The Conical Removable Pin

When the removable pin is conical or beveled, it's not possible to grip it with pliers. However, there are good tricks to carry out your intentions.

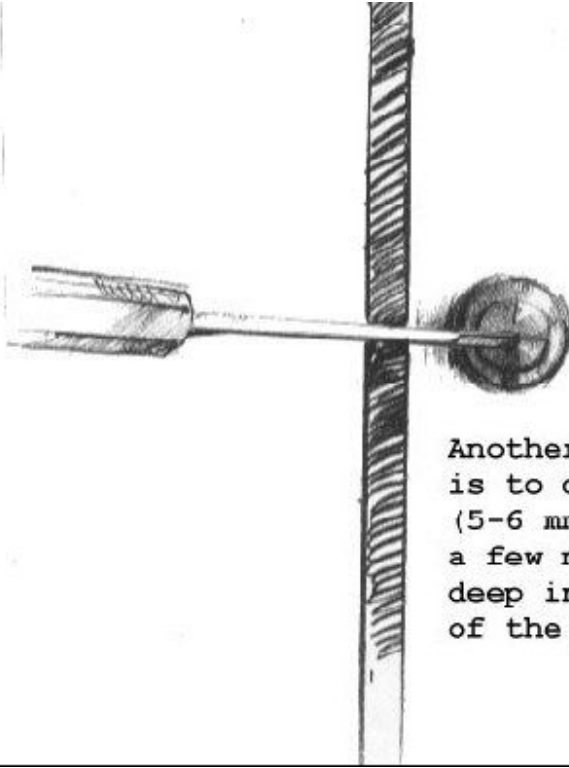


Conical removable pin
from the front and with
a square shape

Drill two small holes (ca. 3 mm) and turn with pointy round pliers.
Drill two holes (ca. 5 mm) on the edge of the pin and turn there with
round pliers.



With a Screwdriver



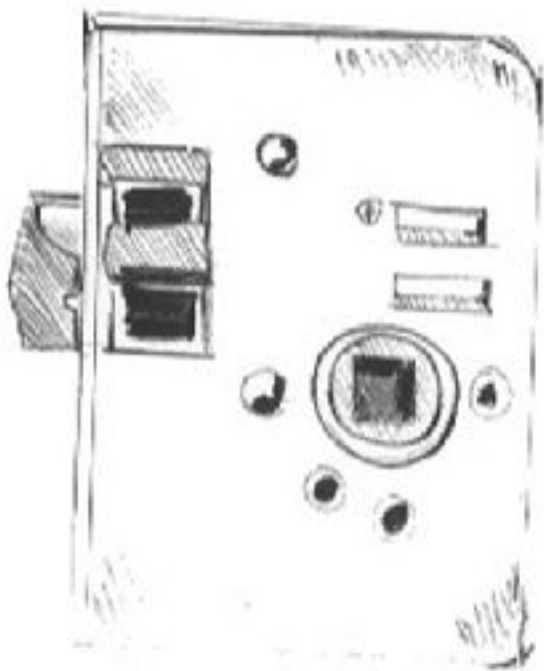
Another possibility
is to drill a hole
(5-6 mm diameter)
a few millimeters
deep in the middle
of the pin

Then hammer in a somewhat wider screwdriver and turn. The screwdriver will jam and you can easily rotate the pin.

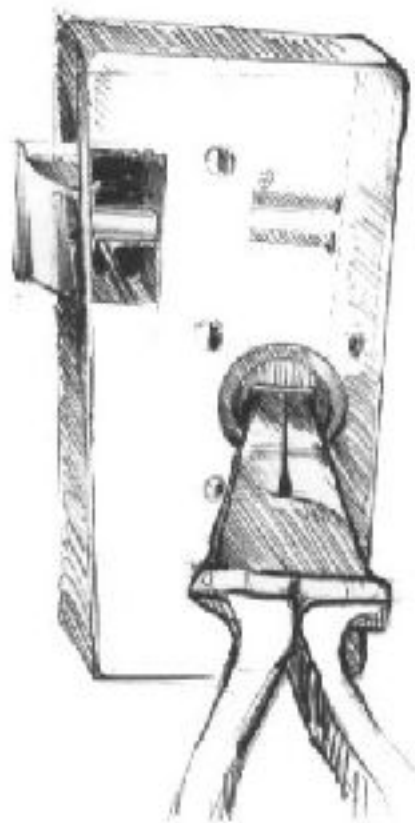
In the case that you aren't able to succeed with these methods, you must be a little coarser. Apply a pointy tool and hammer in the direction of rotation!

Only select this variant when all of the others fail and as the absolute last resort, because even if you are very careful, you could cause damage.

No removable pin to be seen?



If the pin has slid inside or fallen out, then the square nut is easily rotated with a large screwdriver or, ideally, with flat-head pliers.



Wire Method

The Classic!

This opening method is overall the most commonly used by every locksmith. It's not an exaggeration to estimate that 95% of closed-over doors are opened in seconds and without damage using this method.

Memorize this trick in particular – it is the most important and the best!

With a thin, strong wire, you can push back the safety catch as long as there is enough space between the door and the frame. This is, however, nearly always the case. With newer houses, you normally see a seal in between, with older houses there is often plenty of work space between the wooden frame and wooden door.

You could use a wire purchased from a specialty shop (Closed-over door needles, as they will often be called in specialty stores) or manufacture this tool yourself, which naturally has the advantage that you can determine the strength, length and angle of the tool yourself (See chapter “Tools”).



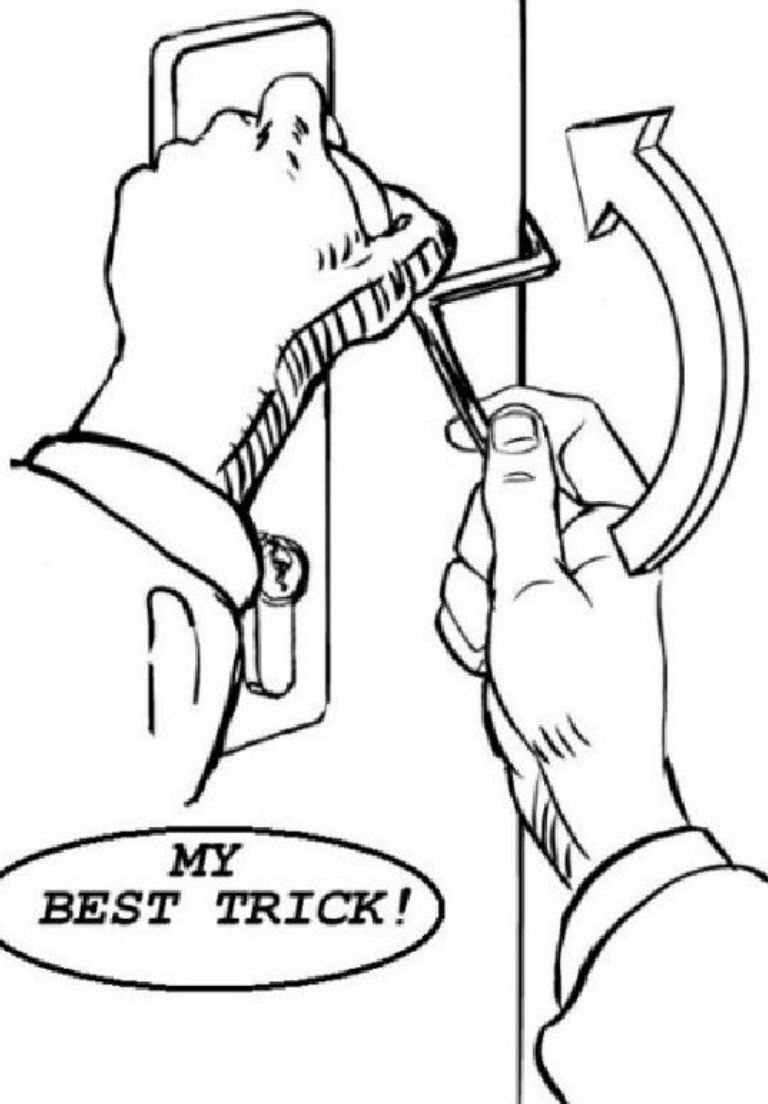
Ideally bent wire

Procedure:

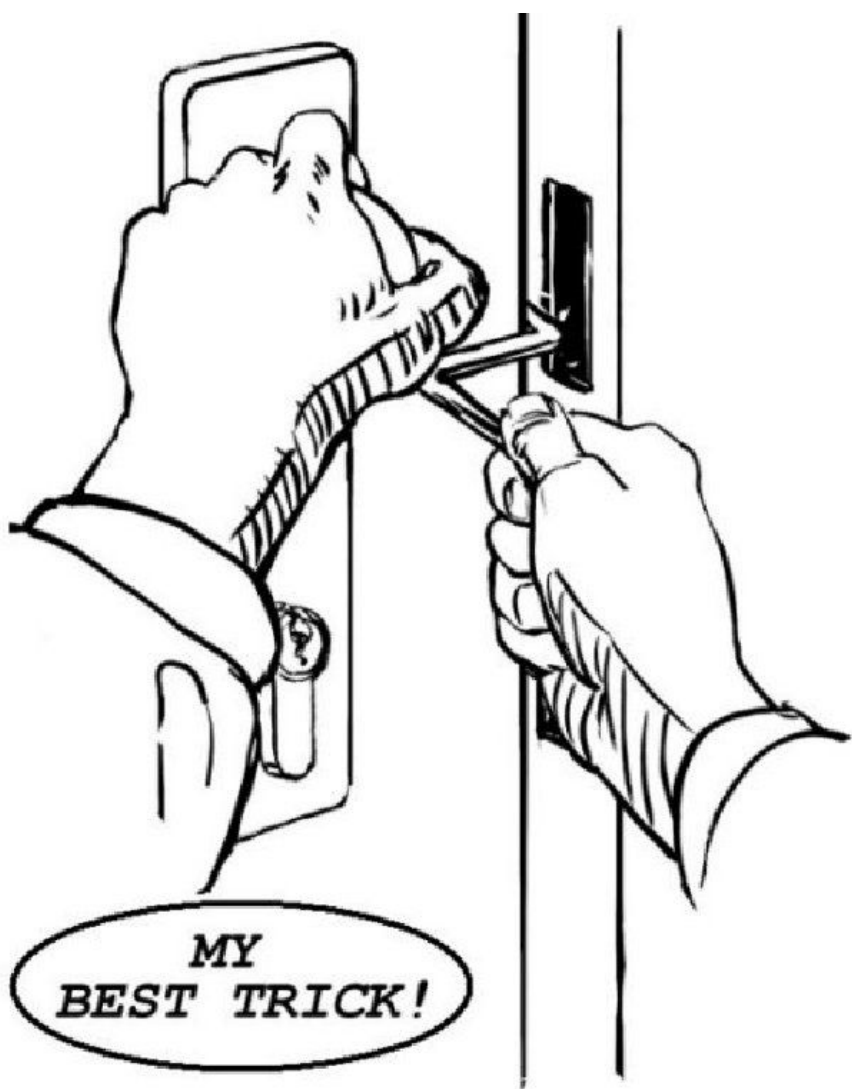
The ideal place to insert the wire is somewhat underneath the cover plate. Spray the crack beforehand to make insertion easier. In addition, you could carefully push against the door with your foot to let a little more air into the crack and enlarge the space. When the wire has been inserted and can be moved, push it upwards until the upper part of the wire rests exactly underneath the safety catch. It is for this reason that the wire should be made into a Z shape. In this form, it is easily held and pushed. Now push with one hand on the cover plate and tilt the wire upwards with feeling with the other. The

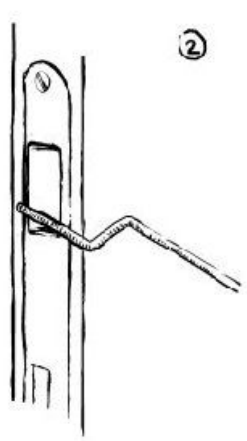
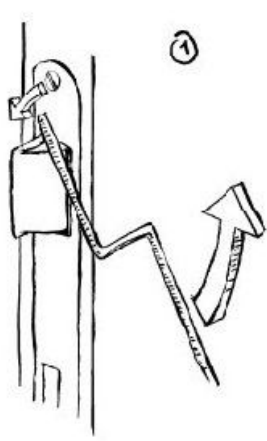
safety catch will be pushed back with the wire and the door will open! Simultaneously rattling the cover plate can be a large help. The most important thing is that the wire is pushed in front of the safety catch upwards, otherwise it will simply rest against the catch. Because of this, the tool must be pushed forward while lifting.





**MY
BEST TRICK!**



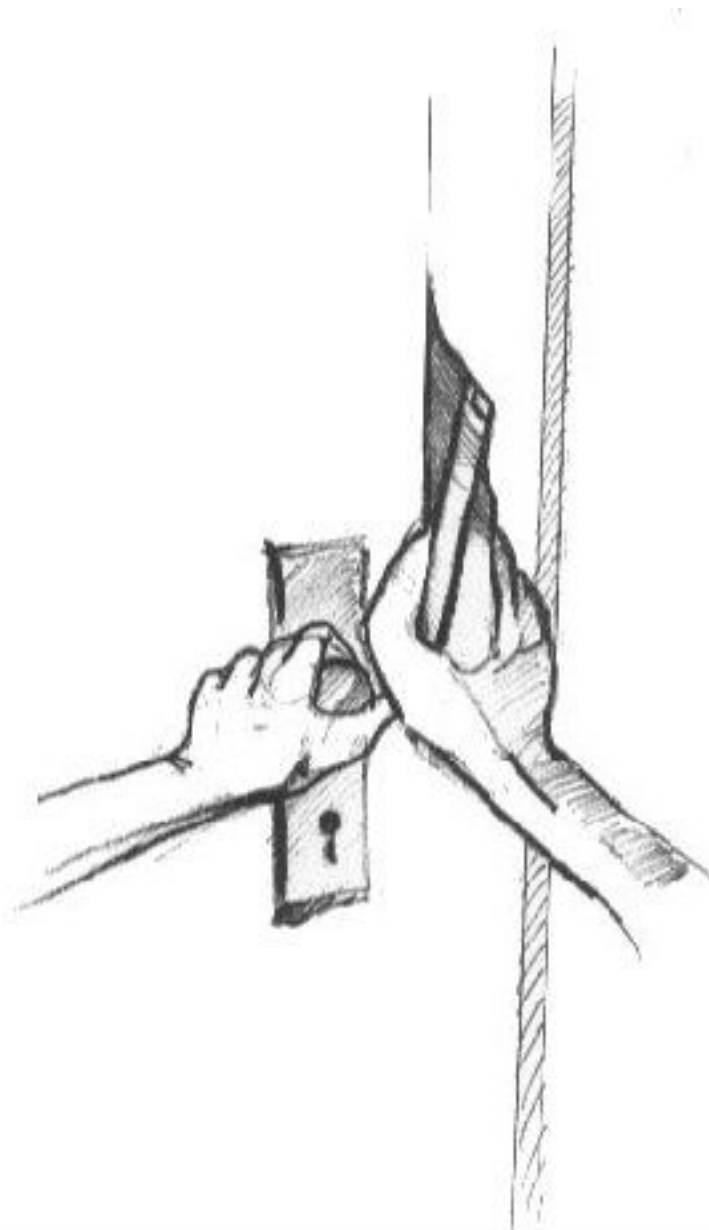


**MY
BEST TRICK!**

The wire pushes the safety catch back and the door springs open

Manufactured Door Cards

You know this method from TV, when a master detective unlocks a door after a short time with a credit card. However, this scene doesn't portray the entire truth, because it is clearly harder and more time-consuming than shown.

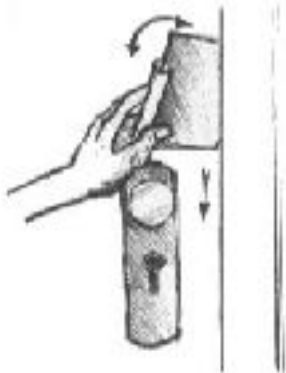
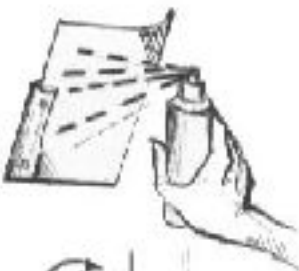


It is possible to “nab” the safety catch with a flexible plastic card, but the procedure is usually not as easy as the previously discussed wire method. There are also cards manufactured specifically for this purpose available in specialty stores, even with a grip for comfortable handling.

You could, of course, use a card without a handle, or even a spatula. However, cards made for this purpose are better.

Using a credit card or other important card is not recommended. The card will be almost certainly damaged afterwards. The problems are practically the same as with the aforementioned wire method, namely, whether or not there is enough air between the door and door frame. In the experience of the author, the wire method is recommended, because the card can get easily jammed, something which almost never happens with the wire.

Procedure:



The best method is to insert the card at exactly the height of the safety catch with light shaking movements, but very carefully, so as to avoid having the card get stuck, making a very dumb picture indeed. Spraying the crack never hurts.

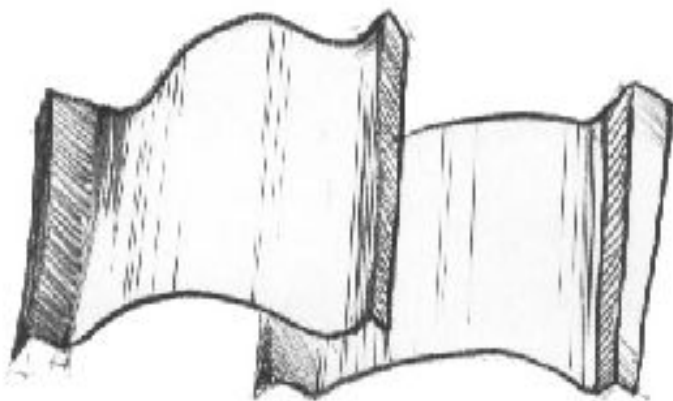
Another possibility is to insert the card somewhat above the safety catch and then lightly jiggle it down to the catch.

Which method you choose depends on the situation: the author has found that the second works generally better.

Metal Door Cards

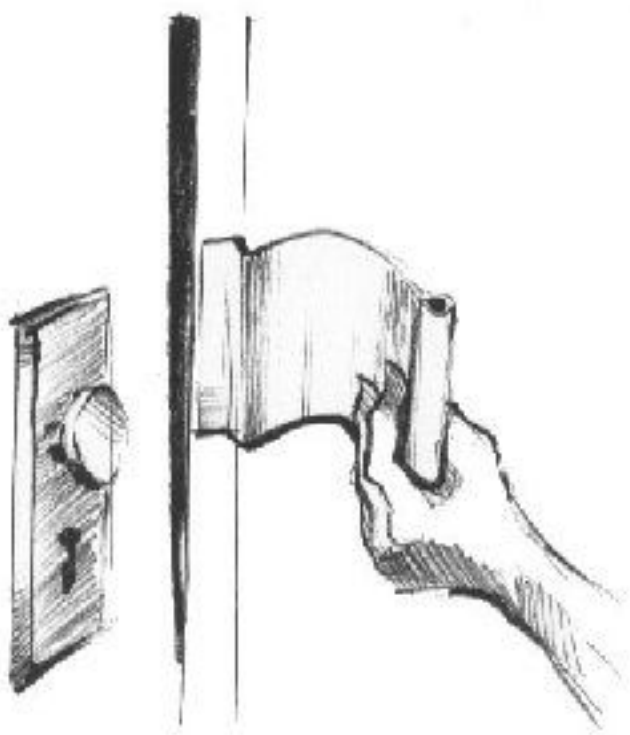
This tool will also be named a safety catch glider, because it should glide over the safety catch and push it back. This works very satisfactorily. With correct usage, you won't leave any scratch marks on either the door or the frame. The advantage is that a card manufactured out of metal is clearly more stable than one of plastic, and therefore you can handle it harder.

Unfortunately it will always happen that sometimes the card jams or some other catastrophe occurs. In such a situation, you should be ecstatic just to solve the problem quickly. Metal cards allow themselves to be removed relatively easily with pliers without breaking.



Procedure:

Insert the glider into the door crack above the catch and move downwards until it “glides” over the safety catch, pushing it back and opening the door. Very important is that the width of the tool is not wider than the door crack, or else this won't work and it will jam very quickly. Gliders will be sold in various widths in specialty stores.



Safety Catch Knife

A safety catch knife is used similarly to a metal card. It is a simply and very effective tool. In the experience of the author, this is the second best way to open a closed-over door, following the wire method.

In cases with many difficulties, sometimes this method is even superior because this tool doesn't bend or twist. The slant prevents it from getting stuck on the safety catch, and therefore must be worked at a very steep angle.

Procedure:

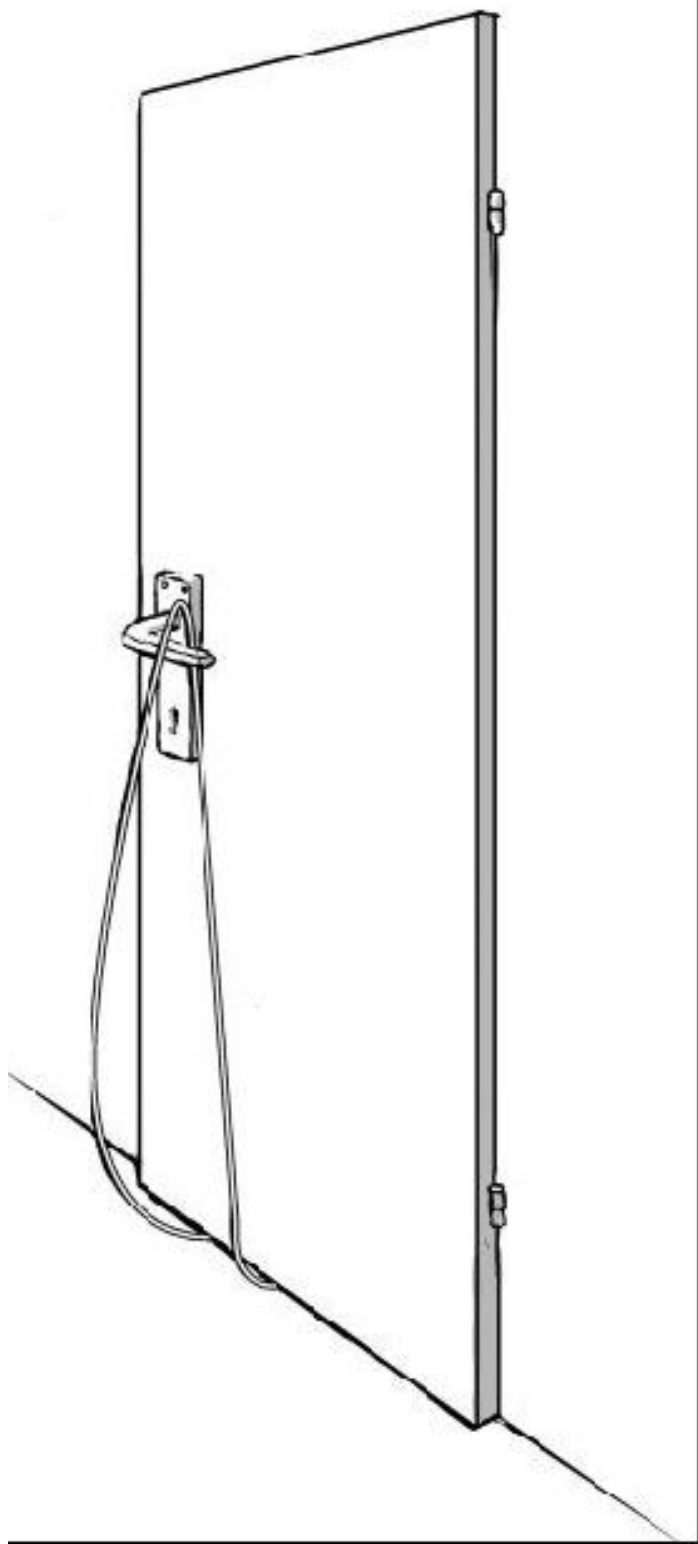
Simply insert in the door crack and run over the safety catch.



A safety catch knife

Door Latch Hook

With this simple apparatus, it is possible to open doors for which you have absolutely no chance of pushing back the safety catch. It could be that there is too little air in the door crack or the catch is too strong to manipulate. There are many factors which could bring your efforts using the previous methods to failure. You'll happily turn to this tool and be in the position to open the door without damage.



This tool is not simple to make and requires some practice. Dry training ahead of time never hurts. It can only work if there is enough space underneath the door. 5 mm is the minimum. Sometimes the space under the door can be enlarged by unscrewing the threshold or raising the door with a door lifter or inflatable cushion. With a strong screwdriver or crowbar, you can sometimes also lift the door a little, but you risk causing damage, like dings on the bottom of the door.

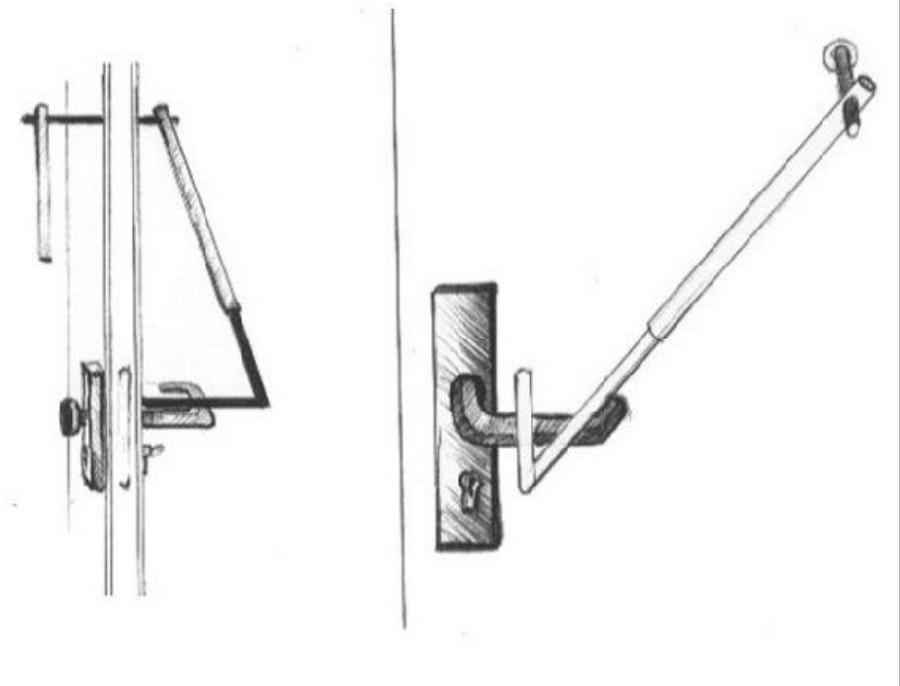
Procedure:

After the workspace, if required, has been made larger, shove the tool under the door and fasten. The handle must be fastened with it. Carefully use your pull cable and tug until the door opens.

Door Latch Pusher

With this tool, it is possible through a hole in the door to manipulate the latch-key from the interior side. A spy-hole makes this easier because it can be easily unscrewed.

For this purpose, there are special pliers which work wonderfully. In the case that there is no spy-hole in the door, one can take the opportunity to mount one. The distance between the hole and the latch-key is the most important factor in this method. It is very important that you measure beforehand or at least exactly estimate, because this tool is very difficult to remove once inserted if it doesn't work. Measure twice to avoid yourself embarrassment later. It is not exactly the favorite tool of the author, but it can often do good work.



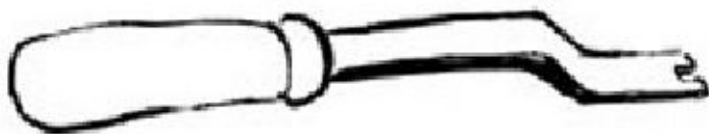
Procedure:

This is very quickly explained. Insert this tool in the spy-hole and allow it to “unfold.” Then attempt to manipulate the latch-key with rotating movements of the tool.

Good luck!

The Cover Plate Lifter

This is a good and effective tool. The goal is to tip the cover plate a few millimeters to the side in order to access the removable pin and turn this with a square knife. This should only be used when there is a very stable safety plate in use, otherwise it can be easily damaged.

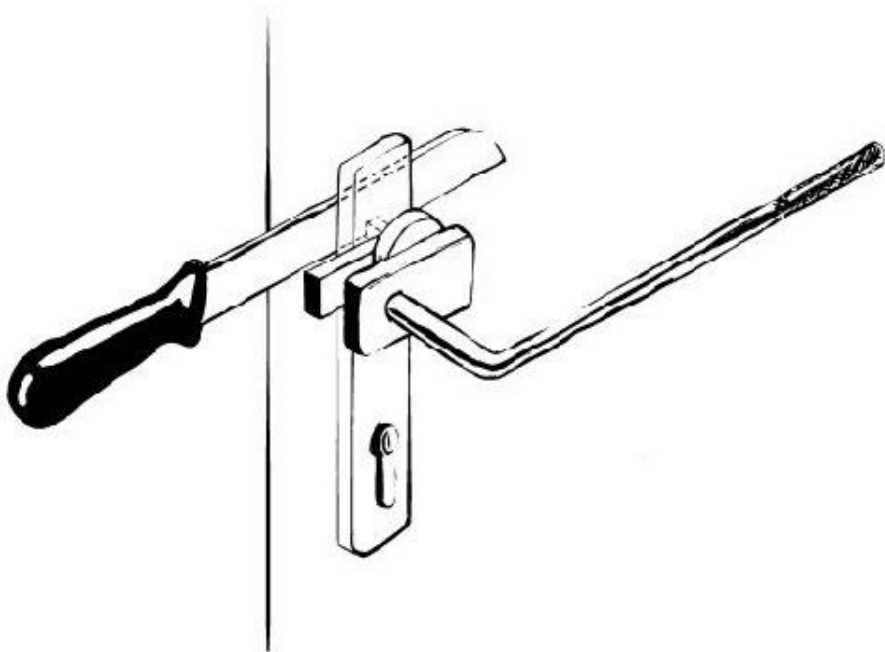


Turn to this tool when the wire and card methods don't apply, in other words, with doubly framed doors which in general have massive

safety cover plates. You will absolutely want a square knife with many grooves, due to the various diameters of square pins which are standard.

Procedure:

Apply the tool steadily to the knob or brace of the safety plate and carefully tilt to the side. In the small space now present between the plate and the door, the square knife can be inserted and turn the accessible pin. A millimeter of space is enough, because the square knife will be only 0.8-1mm wide.

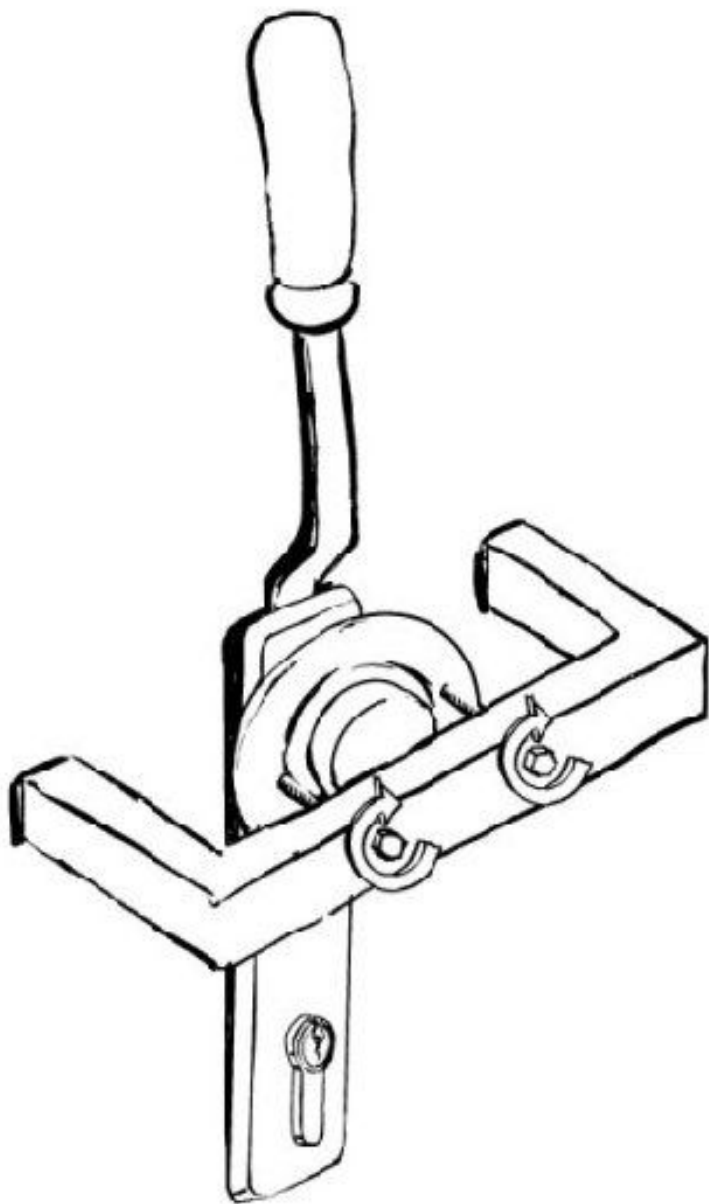


It is easy with a cover plate
lifter to tip the plate enough

The Cover Plate Puller

As an alternative, there is the cover plate puller which functions similarly. The difference is that the entire plate will be lifted and not just tilted. By the application of this strength, one must be very careful, otherwise one will be holding one's head in one's hands! Only

use this on stable doors!



This tool can also be
used perpendicularly

Drilling holes in the safety catch

Because of the difficulties inherent in this work, you should use this method only in the case of a real emergency.

This variant doesn't bring you entirely damage-free to an open door, but in some situations you are left with no other choice.

However after a little repair, it will be invisible and the long-term consequences are therefore not half so bad. You should only feel confident drilling holes in the safety catch if you are an experienced handworker who has practiced often with a drill, because otherwise this method can lead to disaster. Please think twice, because there is no going backwards.

Factors like no air in the door crack, old cover plates, steel doors, no air under the door, or a doubly framed door make it practical to choose this route. An advantage is the fact that one can drill holes in the safety catch also with locks of which you are uncertain, like foreign manufacturers, rare models, or simply something from the Stone Age. This is also a good method to use with spring auxiliary locks without destroying them. A little iron paste and some dabs of paint if needed will make the holes invisible.

Procedure:

Drill a 6mm hole through the door at exactly the height of the safety catch. Estimate the angle precisely so that the point of the drill comes to the safety catch. Use a bright flashlight (halogen) to light your way into the hole to make out the catch.

Shove back the catch with a scriber to open the door.

You must absolutely practice this in a workshop or on a model before in a serious situation.

With double doors (old buildings), it is a good idea to drill through the cleat in order to expose the catch. A 6 mm hole is large enough to make for comfortable working conditions. With many exotic locks, this is sometimes the only possibility to open a door quickly and without damage. With a little liquid wood in the correct color, the hole is practically invisible.

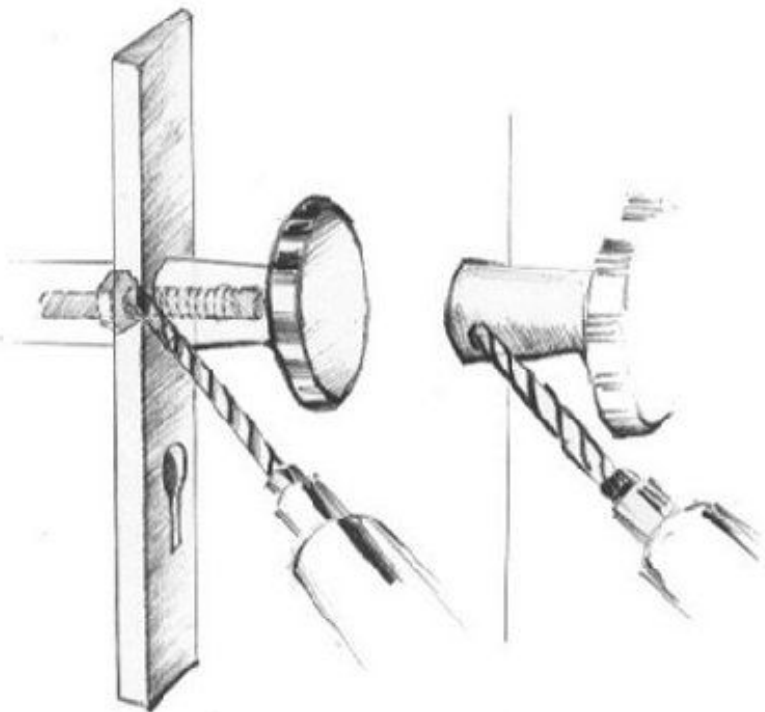
Cover plate/Pin drilling

This method is also an emergency solution. Despite that, you may be

very happy at one point to know it. It can mean your rescue and free you from hopeless situations. It is preferable to use this with cover plates which have knobs. The idea is that the square removable pin can be turned along with the knob if one binds the two together with a nail or screw, because the pin reaches to the knob on the outer side.

Procedure:

Drill a 3 mm hole on the underside of the plate knob until you reach the pin. The hole should reach over at least the half of the pin, but never through the knob, because then it will be visible. It is advantageous to drill at an angle through the plate because then you will be guaranteed to hit the pin and not pass by it. Stick a nail, a piece of inflexible wire, a very thin screwdriver, or a pin in the hole and rotate the knob with a large pair of pliers. Once around the knob with a towel or pliers with plastic overlay, like the technicians use, will be enough for the knob.



Drill through the aluminum
until reaching the screw

Key cutting

A built-in double cylinder is conceived in such a way that two keys cannot be inserted at the same time and turn. An interior hitch of the cylinder prevents this. This method will show you how to circumvent this fact.

This method will be beloved of any aspiring technician.

It often happens that there is a key stuck on the inside side of a cylinder lock and you are outside with another key. The main culprit of this crime is usually forgetfulness. Sometimes it is even locked from inside and someone is in the apartment, who, for whatever reason

(sickness, injury) can't come to the door. With this trick, you can not only open the door if it was closed-over, but also if it has been locked. It requires a bit of time and energy, but it is worth it, because the lock must not be destroyed, only one of the keys.

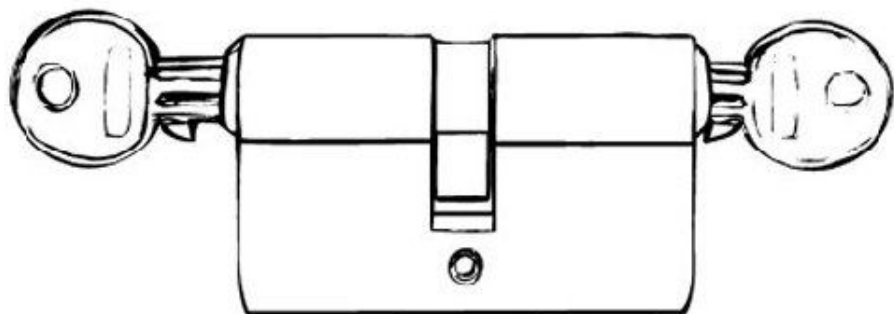
Procedure:

Commonly there is about 1 mm which is missing due to the second key, which you require in order to unlock the door or even to fully insert the key.

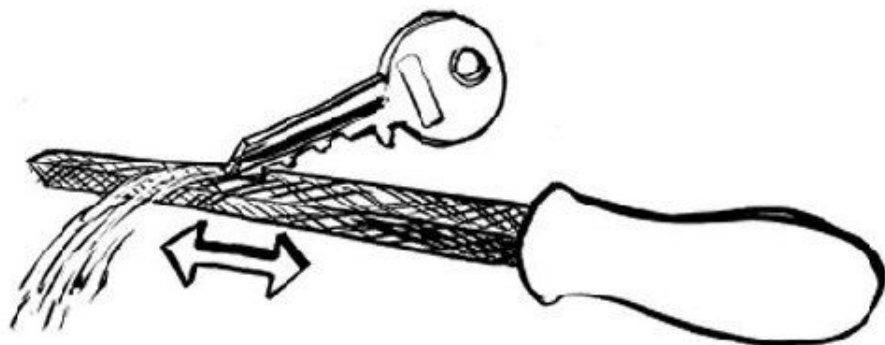
Begin by filing down the point of the key. File along the same angle as the key groove had so that it glides easily into the keyhole. File a bit, then insert the key in the cylinder and try to turn it. Try to turn it left and right and knock it lightly from outside. Repeat this procedure until the key begins to turn in the cylinder.

Now take a small iron saw and saw the entire key lengthwise along its first groove. Naturally, the first groove from the back is meant. You could also file it, but sawing goes faster. When you saw, there will be imperfections left which should be filed cleanly away. The half of the key with spikes and half a head will be left over. You almost won't be able to recognize any similarities to a normal cylinder key. Up to now it was relatively easy, but now things get interesting.

Insert this "key skeleton" into the cylinder carefully, without bending it. In the upper part of the cylinder, the other half will be missing which you have removed, and you will see an empty place. Insert a thin, strong wire here far into the cylinder. The outer end of the wire should be bent perpendicularly so you can hold it well. Turn the key in the direction which would open the door. Simultaneously, push the wire steadily into the cylinder. After a few turns, the hitch will give and the inserted wire will move a little further into the cylinder. The internal key will begin to turn with you. Now the only question left for you before opening the door is how many times the inside key was turned to lock it. The safety catch allows itself to be unlocked in this way as well.



Both keys cannot be entirely
inserted in a cylinde



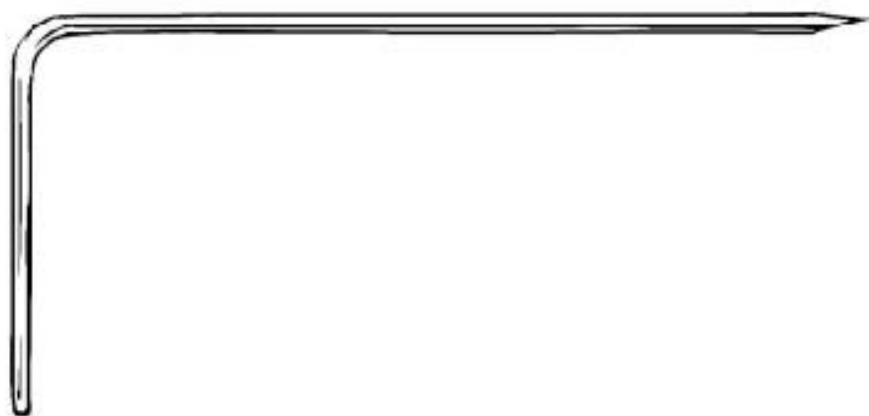
Filing the key point



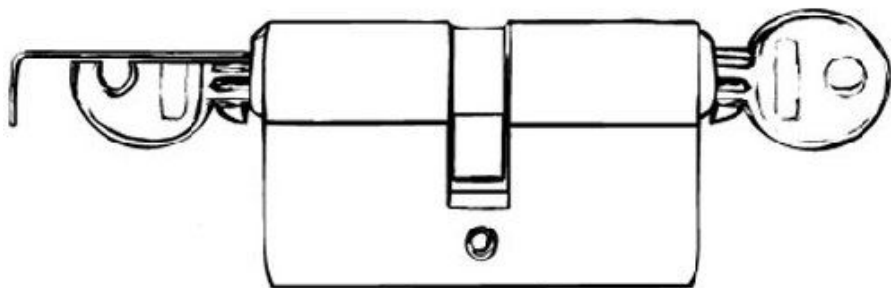
Careful sawing of the key
along the first groove



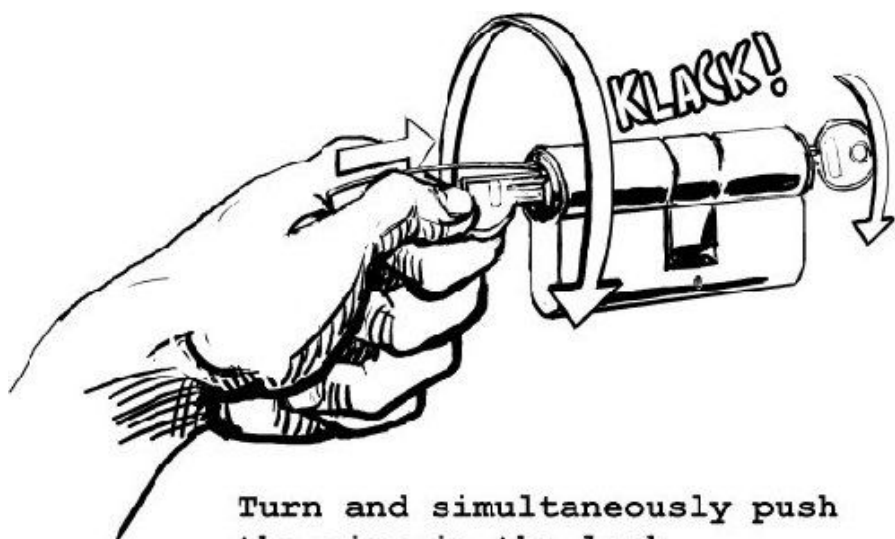
Correctly sawed
apart key halves



The strong wire must
also be sharply pointed



Insert the wire above the key-half



Turn and simultaneously push
the wire in the lock

The Doubly Framed Door

The name comes – not difficult to guess – from the fact that the safety catch doesn't lie around the first corner, but rather around the second. The door frame and the door therefore don't have one frame, but two. This construction is called doubly framed. These doors are very massive and at least 70 mm thick. They are frequently installed in newer buildings because of their sound-proofing qualities as well as their preventative break-in measures.

Doubly framed doors can present a large problem. One doesn't recognize them at first glance, but for the most, an attempt to push the door a little with their foot is enough. When this doesn't work, the cold shudder runs down your back. In order to be totally certain, complete the wire-test. Insert the wire in the door crack a little above the cover plate and glide down with it. You're trying to feel the safety catch and/or push it back in. If you feel nothing and the wire simply continues the entire way under, then you are standing before a doubly framed door. Because despairing won't open the door, various possibilities will be discussed here. Some you have already learned in the chapter <Pulled-Closed Doors>, others are new.

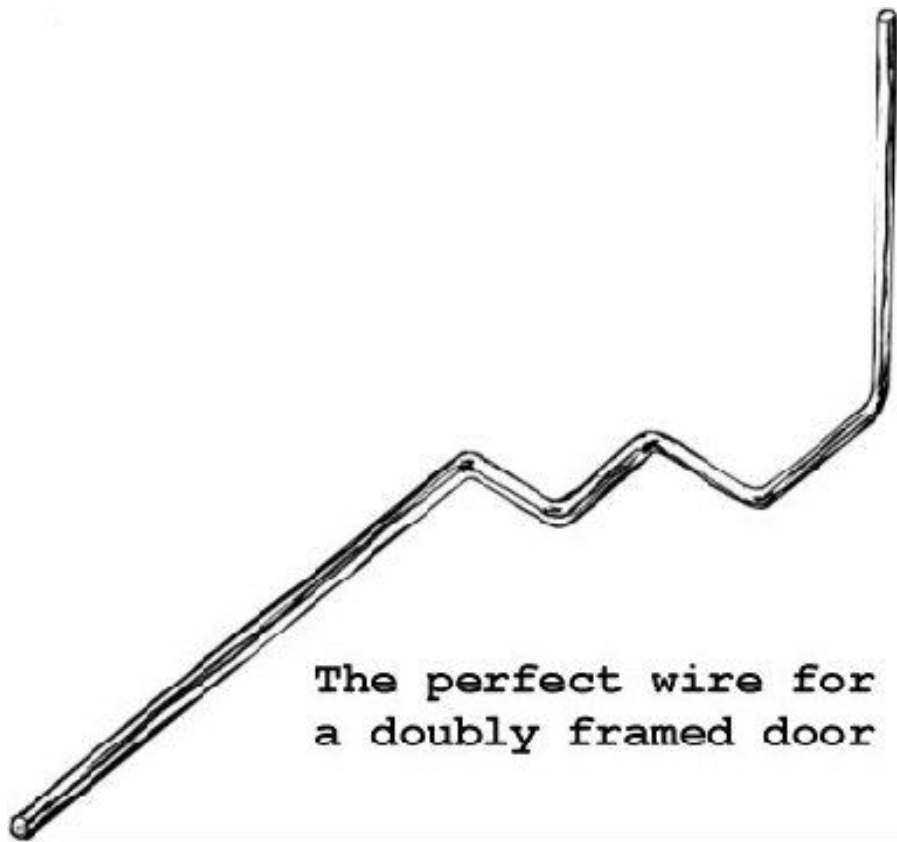


Methods discussed in other chapters:

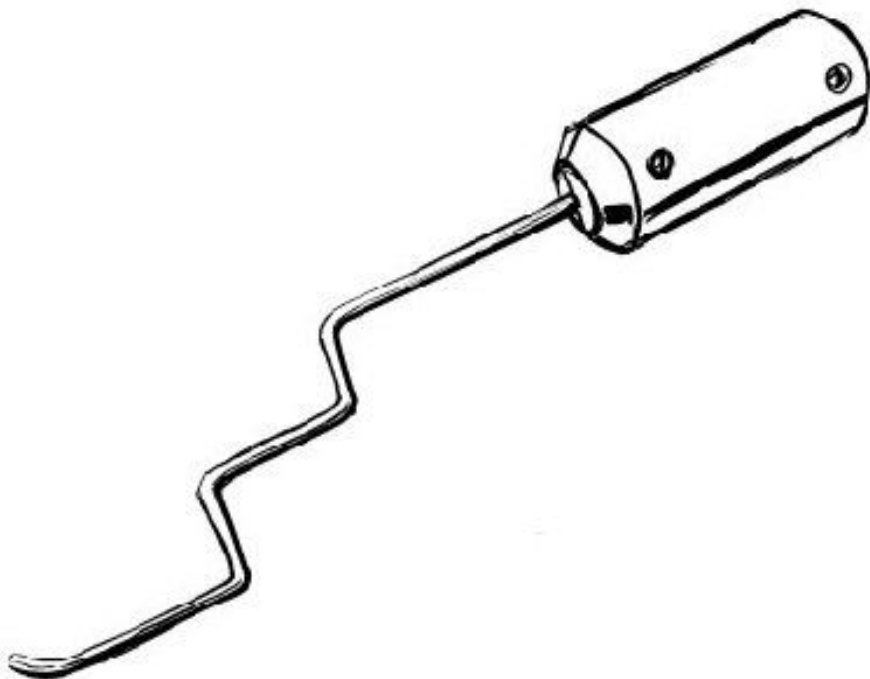
- Door Latch Hook
- Door Latch Pusher
- The Cover Plate Lifter
- The Cover Plate Puller
- Drilling holes in the Safety Catch
- Cover plate/Pin drilling
- Key cutting

The Wire Method

Doubly framed doors also can be snapped open with the wire method. It's just not as easy as with normal doors and requires more luck and practice. In contrast to a simply bent wire, this special model must have specially bent angles in order to reach the safety catch. This is called the double L bend. When bending this tool, you must note whether you're dealing with a left or right-handed door. The width of the wire is also important in order to avoid jamming in the crack. One can easily imagine what it would mean if the wire jams and cannot move up or down.



The main problem here is inserting the wire into the door crack and being able to push it in the direction of the safety catch.

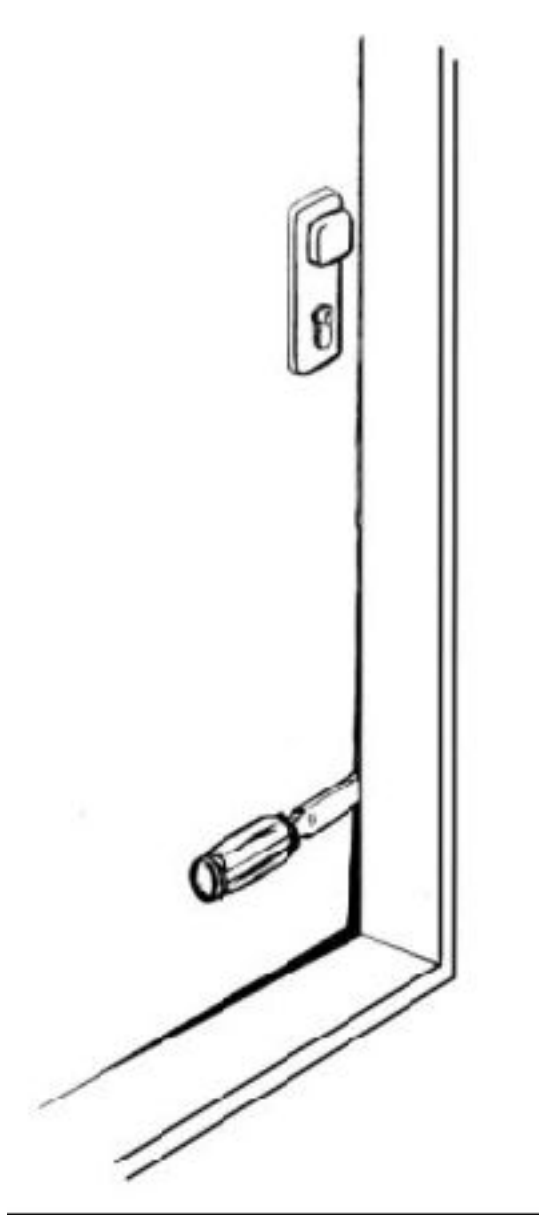


The safety catch is also accessible with this tool.

The door must be pushed wide open in order to access a large enough space to insert the wire. 15-20 mm space minimum must be between the door and frame. A difficult job when one considers that these doors are very massive and built to withstand attempts at deformation. Of course, there are a couple of possible ways to accomplish this, but first let's look at those requiring no special tools.

Procedure:

Insert a crate opener in the door crack on the lower part of the door in order to create a bit a leverage power and budge the door.

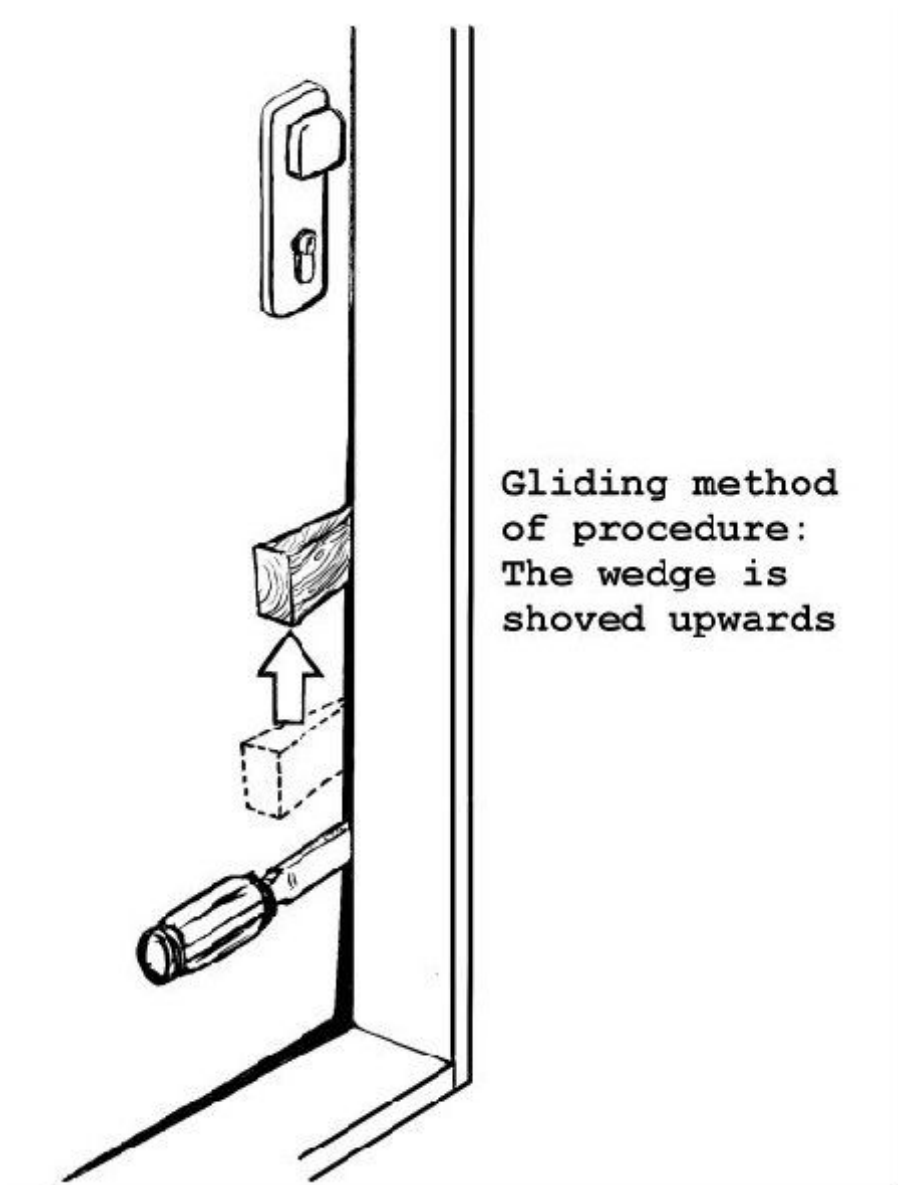


The crate opener should be at least 3 cm wide in order to leave no visible marks on the door. It is best to work step by step. To hold the distance, insert a wooden wedge above the crate opener. The wedge should be at least 1 cm wide. Begin way down at the bottom of the door. Work stepwise higher until there is enough space to insert the wire.

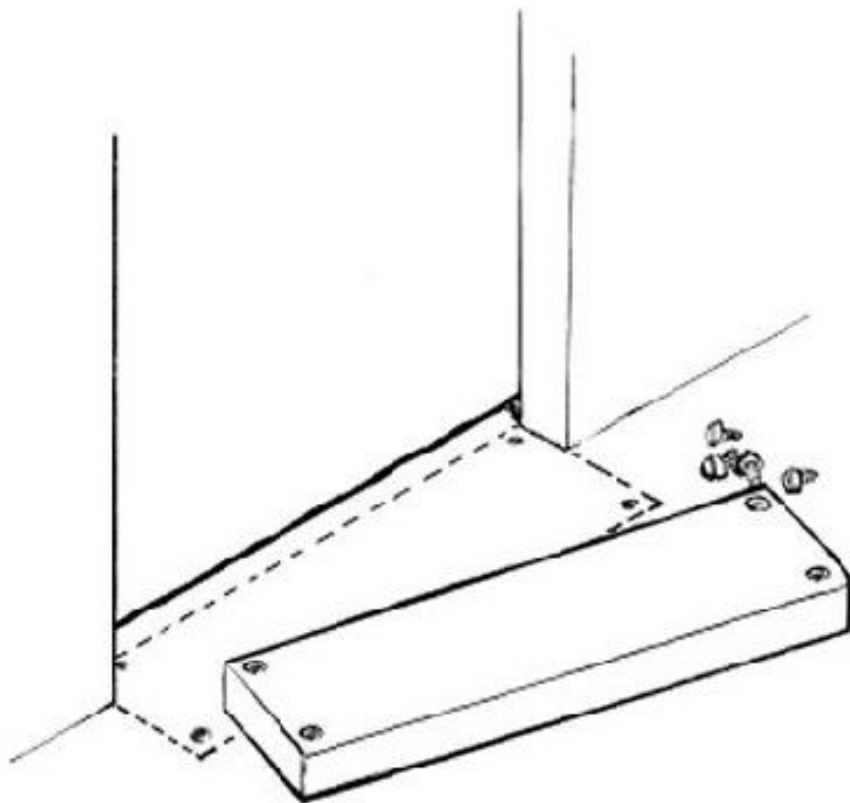
So: Push the door in – Insert wood wedge – Push door – Move wedge higher...

After you insert the wire, slide it until it is right under the wedge. Now push the crate opener upwards and remove the wedge. You can now slide the wire over the safety catch without problems. Releasing the catch is no longer a mystery. The exact procedure is the same as with normal doors and is described in <Closed-Over Doors>.

This variant of door shoving is no professional technique, but it is ideal for emergency situations in which you didn't count on encountering a doubly framed door and are without proper tools.



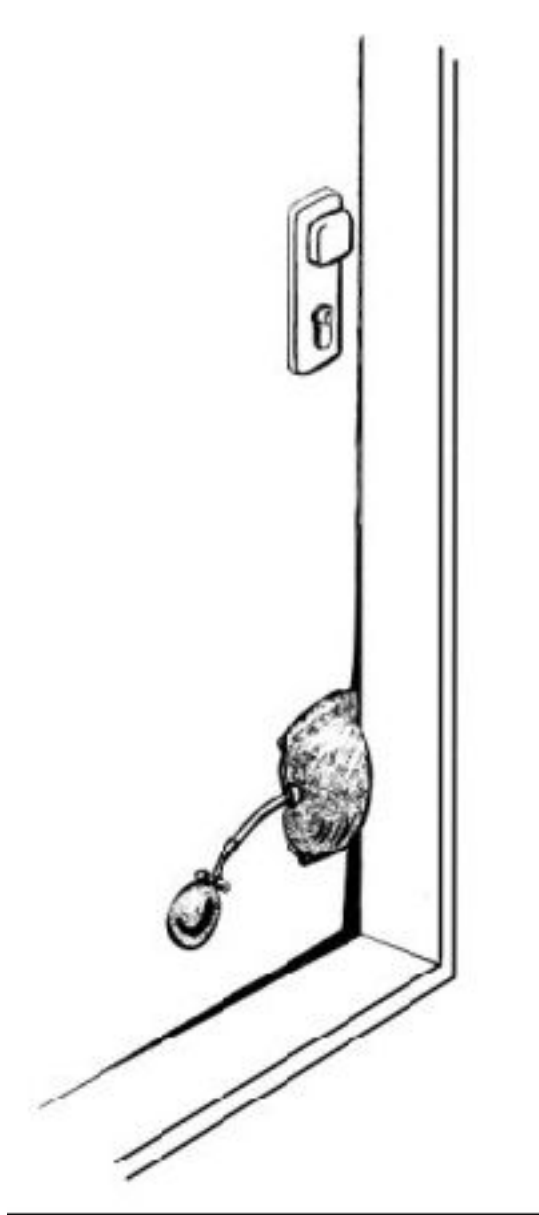
A best case scenario is when the threshold is screwed in. Simply remove this and insert the wire on the underside of the door and then work into the door crack on the side.



If you must regularly open doubly framed doors, don't hesitate to purchase special equipment for them. It is a pleasure to work with these good tools. Many of these will save you from expensive round-about routes, including with cars (ex. air cushion) or can be used in other situations.

The Air Cushion:

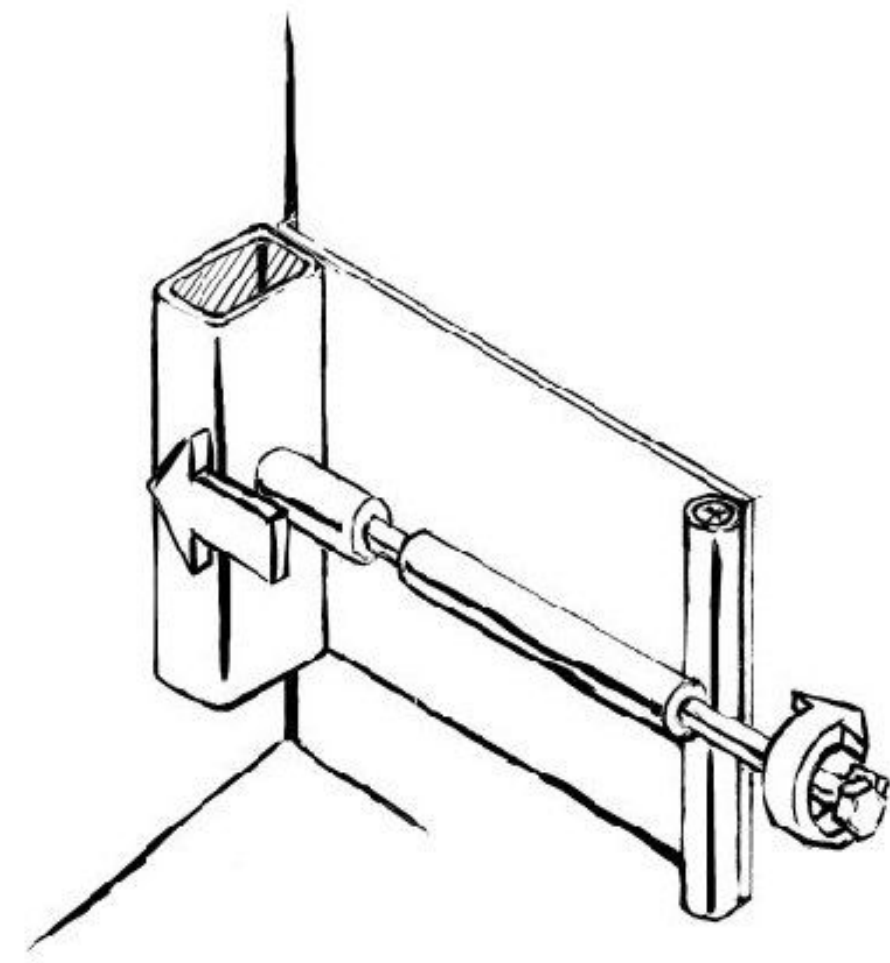
This is definitely a good investment. This inexpensive gadget can also be used with car unlocking.



Even when the air cushion takes over a large part of the work, you still have to create a small place to insert it first. Take a very wide screwdriver or better, a wide crate opener, carefully insert it, and crack open the door a few millimeters. Make sure that you don't damage the door or leave any ugly marks behind. Insert the cushion and begin pumping!

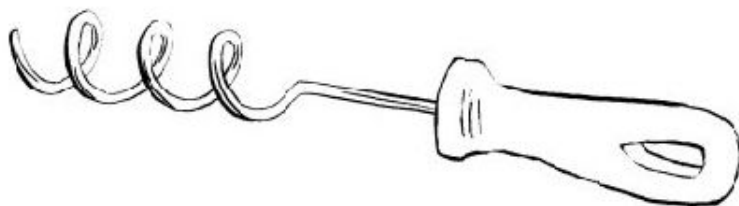
Multi-opener:

Another possibility to widen the crack is to use a mechanical gadget known as the “multi-opener.” It is very easy to use. Simply set it up and screw. The door will move itself.



Spiral Screwdriver

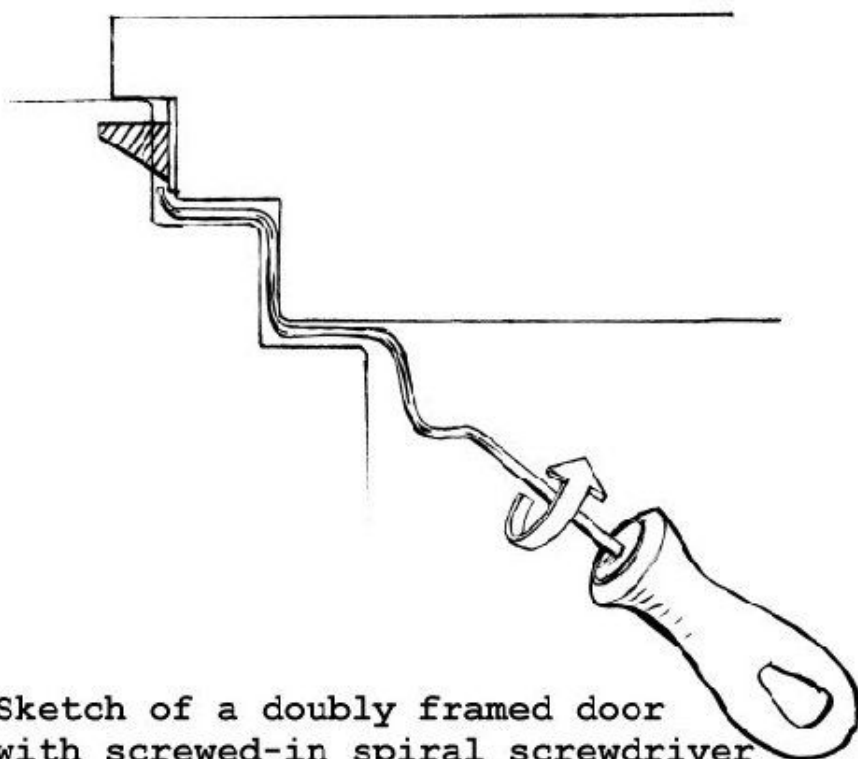
A good alternative to the other methods. It's almost hard to imagine the daily work of a locksmith without this tool. The spiral screwdriver is available for purchase in various sizes. It is also important with this tool whether the door is left or right. The spiral direction must correspond to this direction.



Spiral Screwdriver

The operation is simple:

One screws the tool in through the door crack in the direction of the safety catch and this is pushed back. The damage is minor and practically invisible. Other than a minute hole in the door, everything remains undamaged. Because the spiral spring can't withstand a tight door crack, it propels itself and jamming or screwing through is practically impossible.



**Sketch of a doubly framed door
with screwed-in spiral screwdriver**

Raising towards outside door

These will also be called panic doors. In public buildings, panic doors are required by law. But sometimes you will see them in use in private buildings as well.

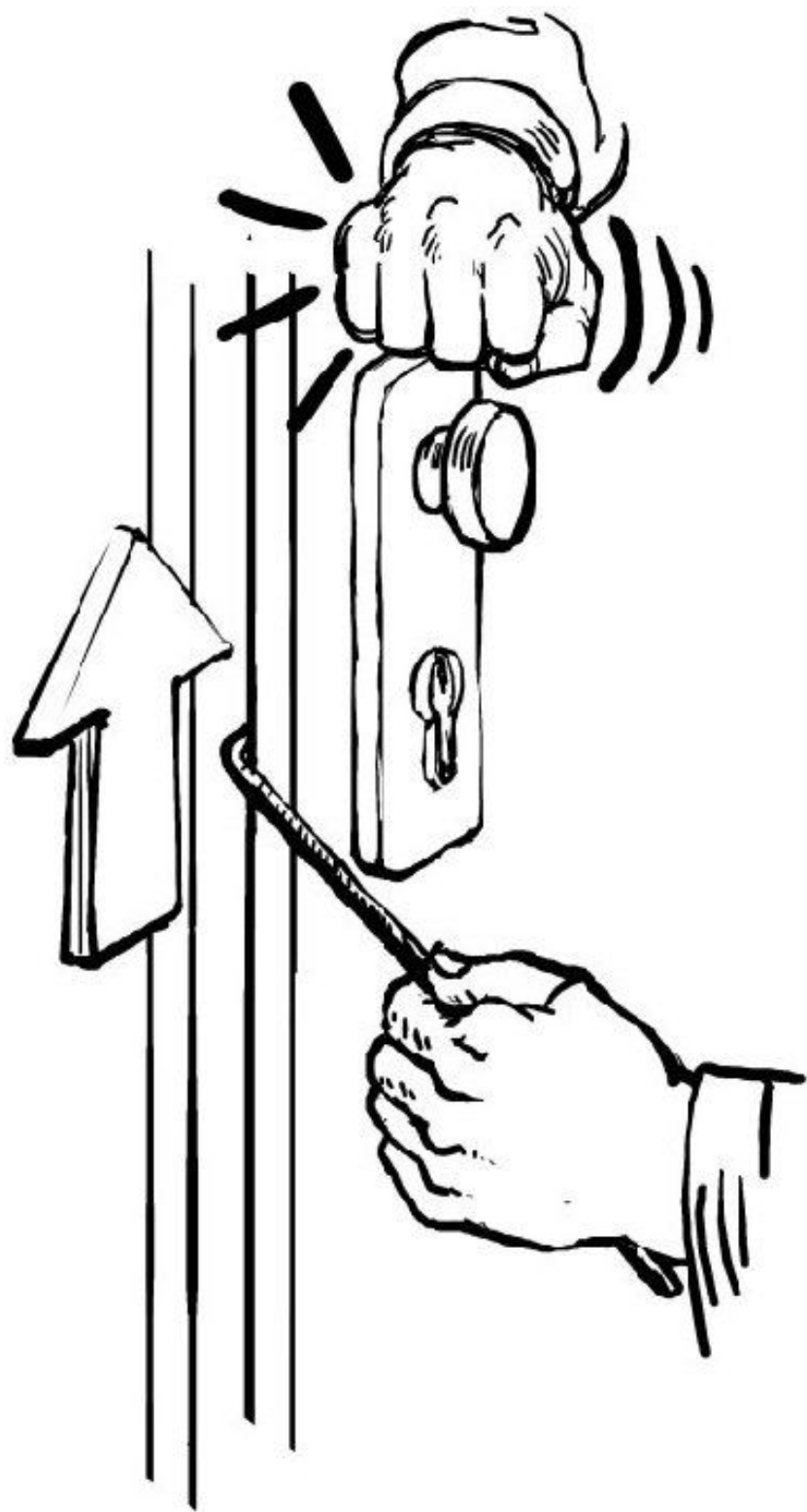
With the wire

If the door isn't entirely shut tight, then it's no problem to open it with a wire.



Simply insert the wire in the door crack and glide it upwards until it is behind the safety catch. To be certain that your tool is lying behind the catch, you should pull the end of the wire in your hand towards you.

If the lock runs smoothly, then the door will spring open of its own accord. If that doesn't happen, then you have to help it a little.



Raise the wire until it is blocked and then hit lightly and quickly on the door in the area of the lock with your hand while you raise the wire higher behind the catch and apply pressure. The door will shift due to the hitting and vibration and through this movement, the wire will accomplish its task.

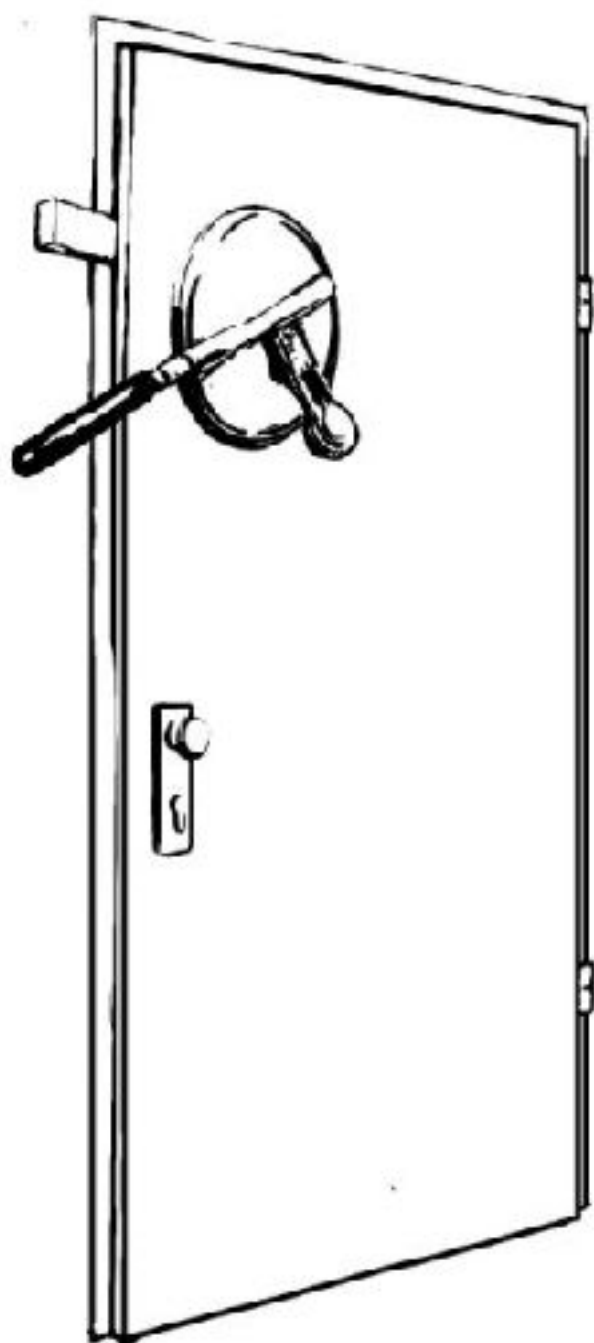
Important:



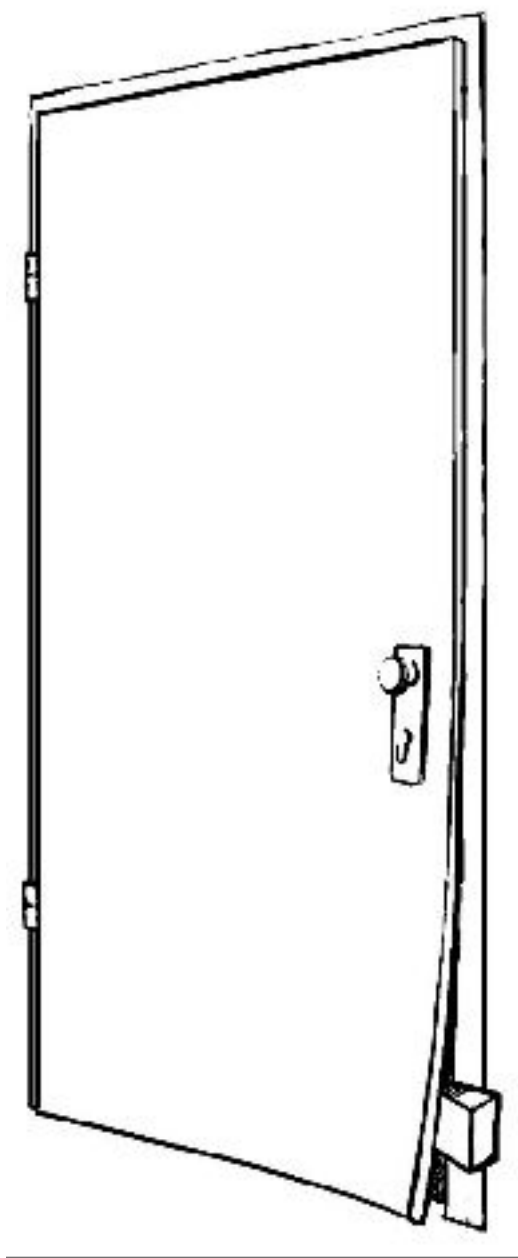
The wire must be behind
the safety catch!

No air in crack?

If the door is lying directly on the door frame, it must be pulled away in order to insert the tool. If it is a door with a very flat surface (wood, metal, glass), then you can use a suction cup.



With rougher surfaces, a multi-opener is a good tool to use to acquire a little space. If you have no special tools to help you in your task, you must resort to more traditional methods.



With a screwdriver or a crate opener and wooden wedge, it is just as possible to pull open a door. Often a few millimeters will do it.

A similar procedure to <Doubly Framed Doors>.

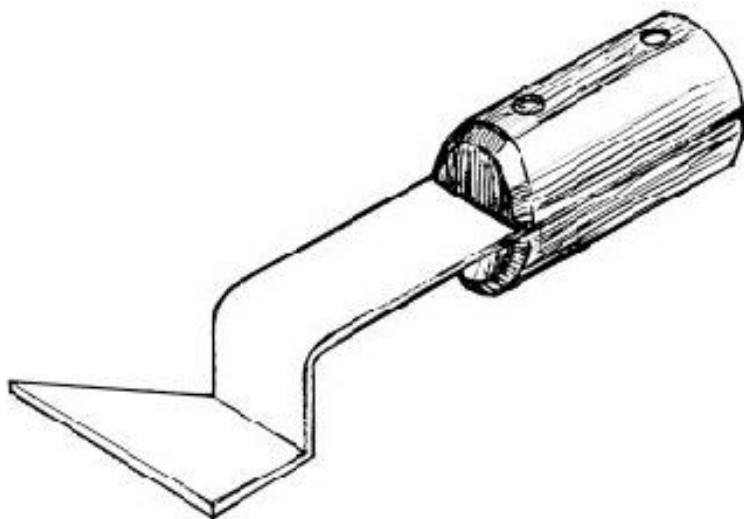
Maintain the tension until you have moved the wire high enough. Make certain that the wire is behind the safety catch. Then release the tension and the catch is released. Hitting or rattling the door can speed things along.

Be very careful with glass doors, because they will break very easily when bent or pulled.

With a panic opener

Rather than a wire, you could also use a metal card (panic door opener) to push back the safety catch. This tool is easily assembled (see sketch) and just as easy to use:

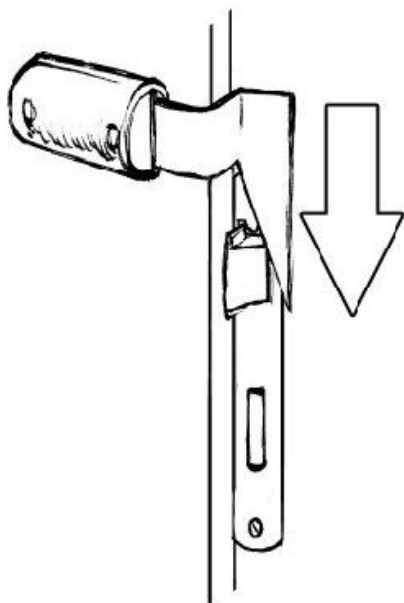
Insert in door crack and raise high.



A panic door opener

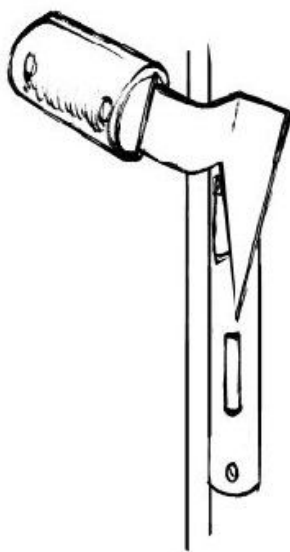
It is recommended to make a second, mirror-image tool as well. The difference is whether you are dealing with a left or right opening

door. As an alternative to a mirror-image tool, you could use the same tool on the “wrong” door and simply glide downwards from above. With a little practice, there is no mystery to this.



Step 1:

**Insert panic
door opener**



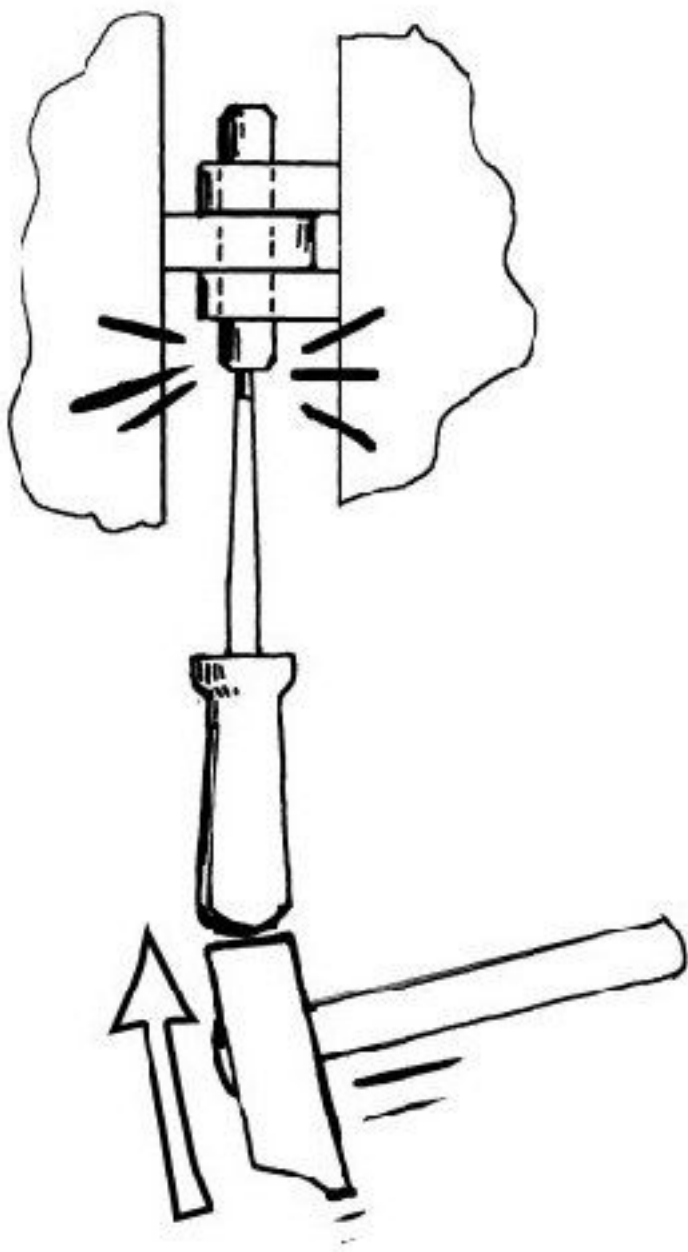
Step 2:

**Glide opener
downwards**

It doesn't have to be the lock

Sometimes a door can also be opened by its hinges side.

The bolts which bind the individual elements can sometimes be hammered out of the hinges from underneath. In this way, many unlocked doors can be opened. Of course, this trick only works when there is no bolt safety in place.



This method is quick and cleanly completed. It won't hurt anything and can be ultimately rebuilt. A good alternative!

It always is worth taking a quick look at the “wrong side” of the door. Sometimes it makes sense to saw off the hinges to get into the apartment or house. Above all, when the cylinder is of very good quality and housed in an expensive cover plate, then it is at least worth considering. The repair is completed very quickly and steel hinges are much cheaper than a cover plate. It is also easier to saw away two or three hinges rather than destroy a whole cover plate. A small handsaw will work well for this job.

Warning:

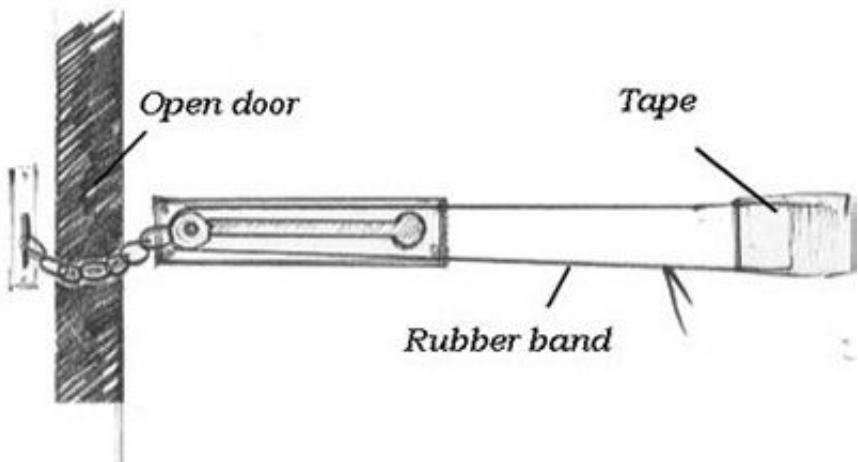
Safety goggles and gloves are recommended. Pay attention to the sparks so that nothing is set on fire.

Safety Chains

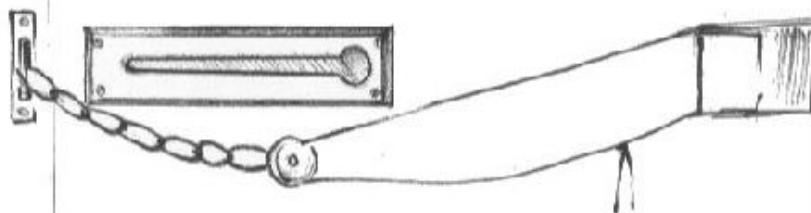
Sometimes a door, ex. back door, is very easy to open, but then you notice that there is a safety chain in place. You don't have to cut through this; with a rubber band and a piece of tape you can quickly open it.

Method:

Cut a somewhat long rubber band and thread it through the chain (not through a single link, but through the whole chain) and then tie it back together. Fasten the piece of tape to the rubber band. Open the door as far as it goes and pull the rubber band to the end of the chain (to the bolt). Then pull the rubber band and tape the inside of the door. Carefully close the door, and the rubber band will pull back together and the chain will fall by itself out of its track. Strong rattling can quicken this process.

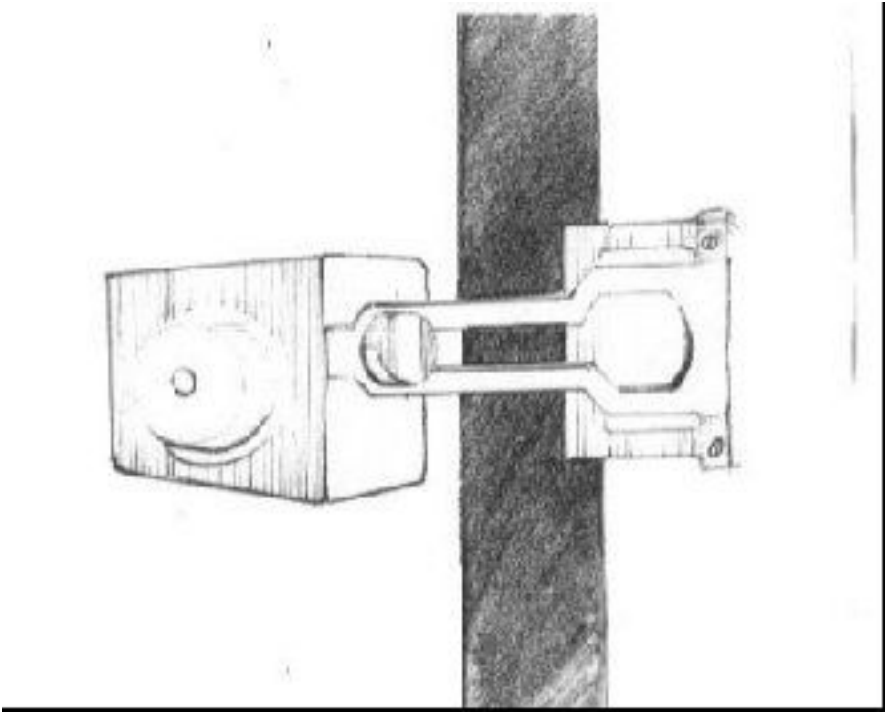


After closing the door, the chain falls out of its track:



Safety Latches

Instead of chains, often stiff latches will be installed to prevent unwanted entry through a door.

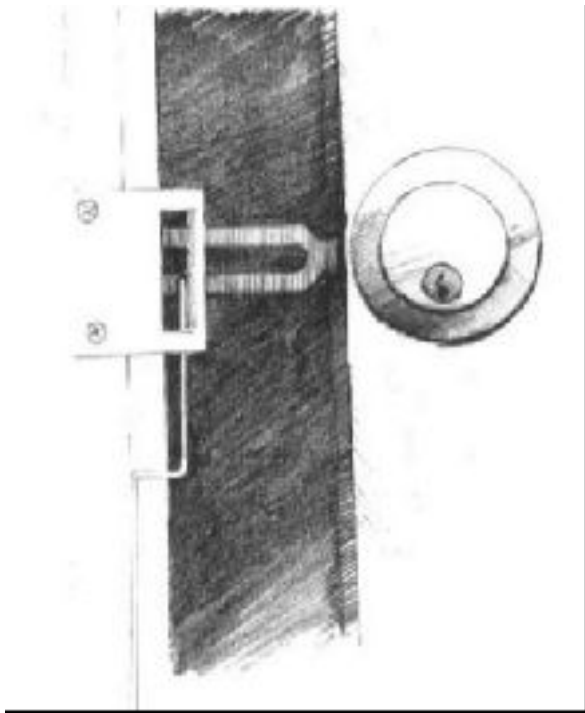


These safety latches will often be mounted in combination with auxiliary locks. The largest part of this contraption is so built that a peg will enter a track through a larger opening and will run along this for a short distance so that the door is blocked partially open.

Without drilling away the track, this latch will allow itself to become disengaged with a thin, strong wire. You don't need to make an extra tool for this. Use a wire for safety catch opening for this job. It has all the requirements that you need: the right strength and the right bend.

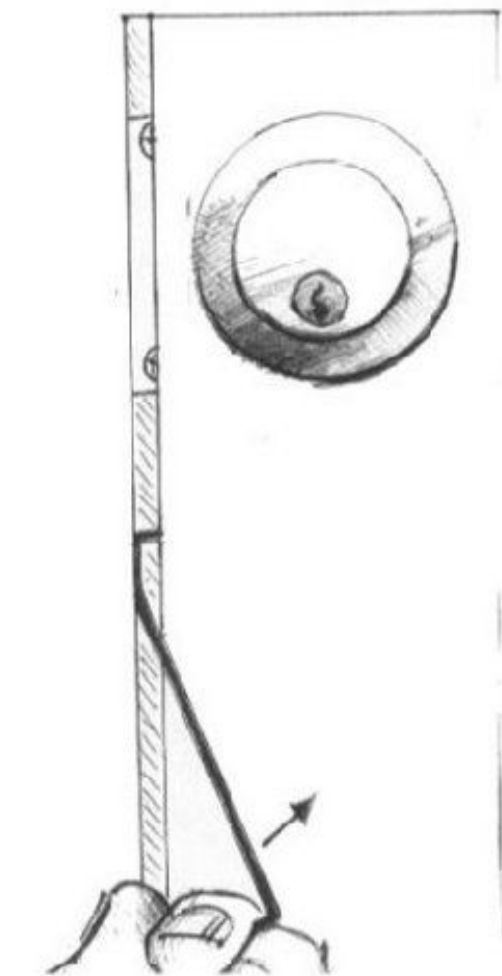
Procedure:

Open the door until you the peg reaches the end of the track and rest the wire on the lower part of the track. Push the wire perpendicularly upwards. In this position, you can see the most.



The larger hole (the part in which the peg enters the track) must remain free, because otherwise the peg will simply remain standing on the wire and not be able to get off its track. If you have properly laid the wire, you can apply light pressure.

The pressure should be enough to move the latch. Pull the door slowly closed and hold the pressure steady. Perhaps you can even hear a scraping noise as the peg passes over the wire.

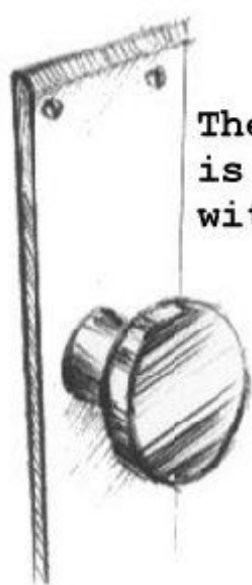


The door is
almost closed:

Be careful
with pushing
back the latch
with the wire

As soon as the peg reaches the larger hole of the track, the wire will push the track free and the latch is opened.

However, a large risk is that when pulling the door shut, it will lock again. Block the safety catch, if possible, with a screw or something similar.



The safety catch
is easily blocked
with a screw

Padlocks

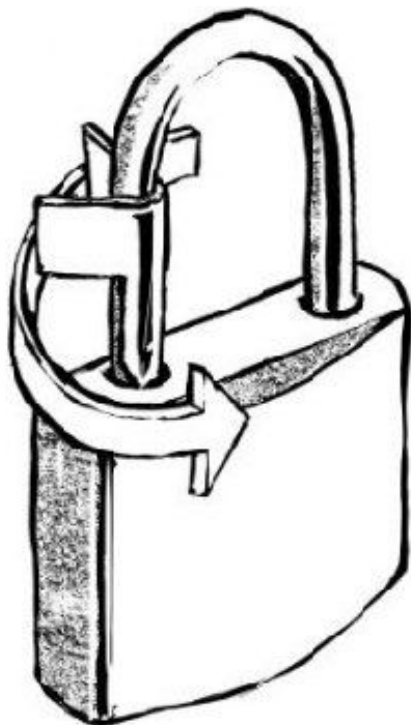
To pick a padlock with professional picks is a difficult feat. The lock must be put in a vice in order to make for problem-free picking. This will be impossible in the location where the lock is installed. You could try to somehow jury-rig a portable vice on location, but this will be normally also difficult. The only way is to hold the lock with one hand and use the same hand to hold the pick and apply pressure, while the other hand picks the cylinder pins. A difficult undertaking. Only with simple models will this technique have a chance of success. With high-quality models, there is no possibility of picking them in this way.

Simple Padlocks

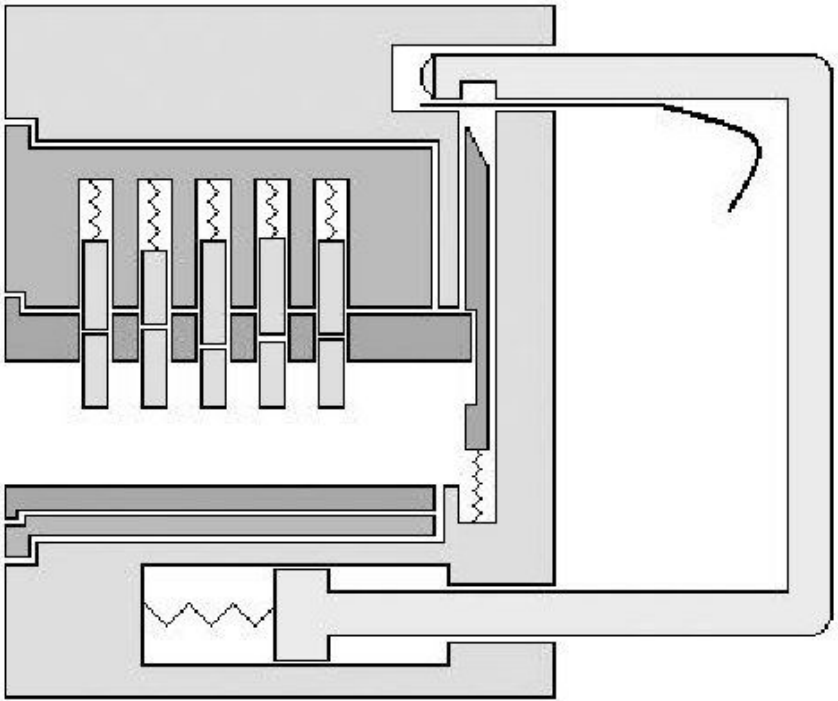
Self-locking padlocks, which snap shut when pushed together and unlock with a half-turn of a key, are very common. They present no real problems and are child's play for an experienced locksmith.

Sheet metal or shims

With a specially bent piece of sheet metal you can open almost all of these padlocks. There are specialty stores which provide wonderful examples of these tools. You can also make your own padlock-opener, but you should model it after previously made models. This type of method is particularly effective and has been proved by much testing in the field.



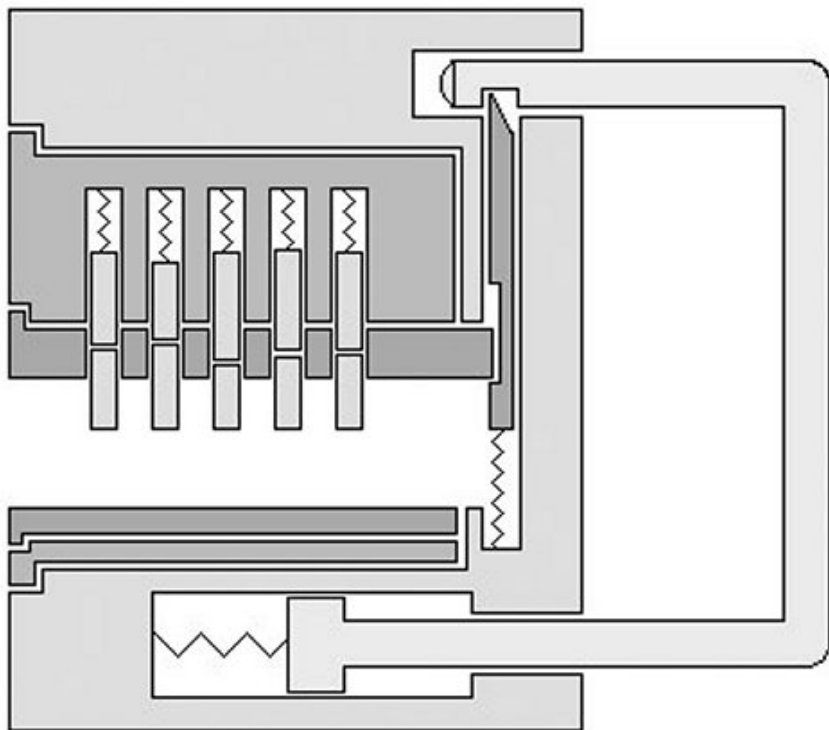
Use a high-quality piece of sheet metal (spring metal) for making your tools. The width can vary from 0.2-0.5 mm in order to have various models for various lock types.



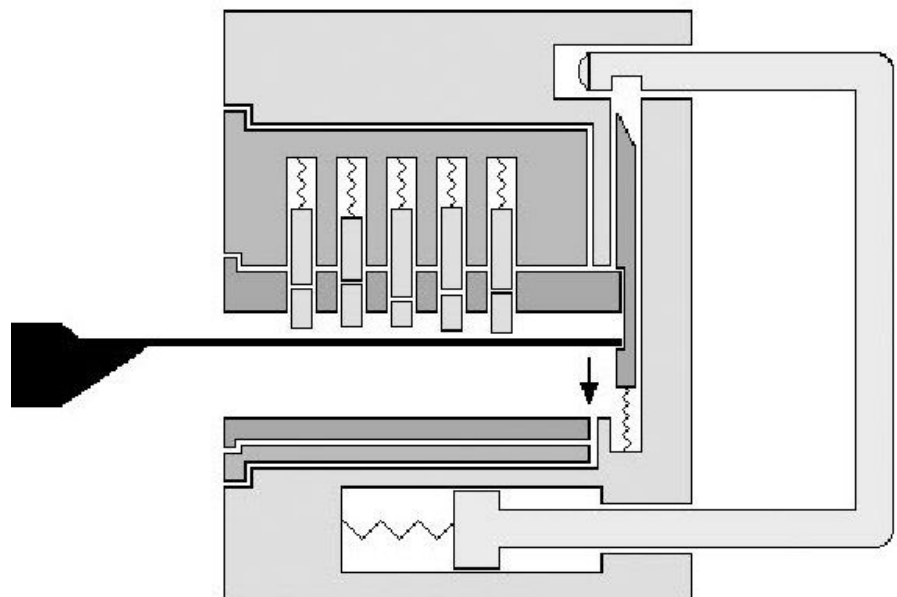
The procedure is very simple. The metal should be inserted in the crack between the lock head and the steel bolt and then carefully turned. The spring bolt will be pushed back in this way and the steel bolt will spring out.

Tipp: One can get good shims from old diskettes.

Pick or Needle



Another possibility is to open the lock with a sharp-cut pick or a very thin scribe. Insert the pick into the end of the key hole. Ignore all of the pins and discs. The goal is the spring bolt which prevents the steel bolt from springing out of the lock. You can pull this bolt back with the point of the pick. If this works, the steel bolt won't be held back anymore. The spring will pop the bolt out of the lock. However, this requires more luck than the shim method, which is easier.

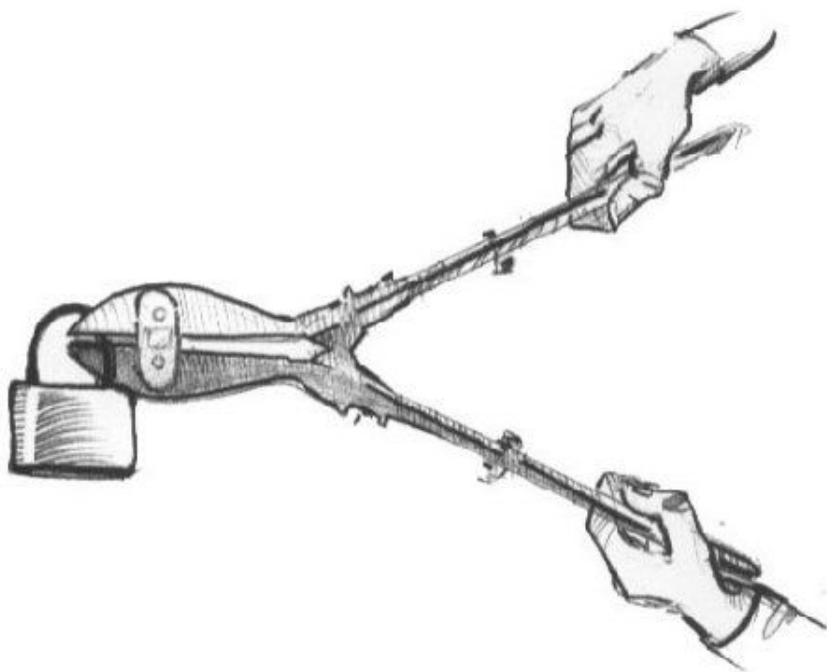


High Quality Padlocks

Expensive padlocks don't snap together themselves, but rather must be extra locked. They are often built so that the cylinder core is located directly in the steel bolt and blocked. Unfortunately, they are unable to be opened with any tricks without damaging them.

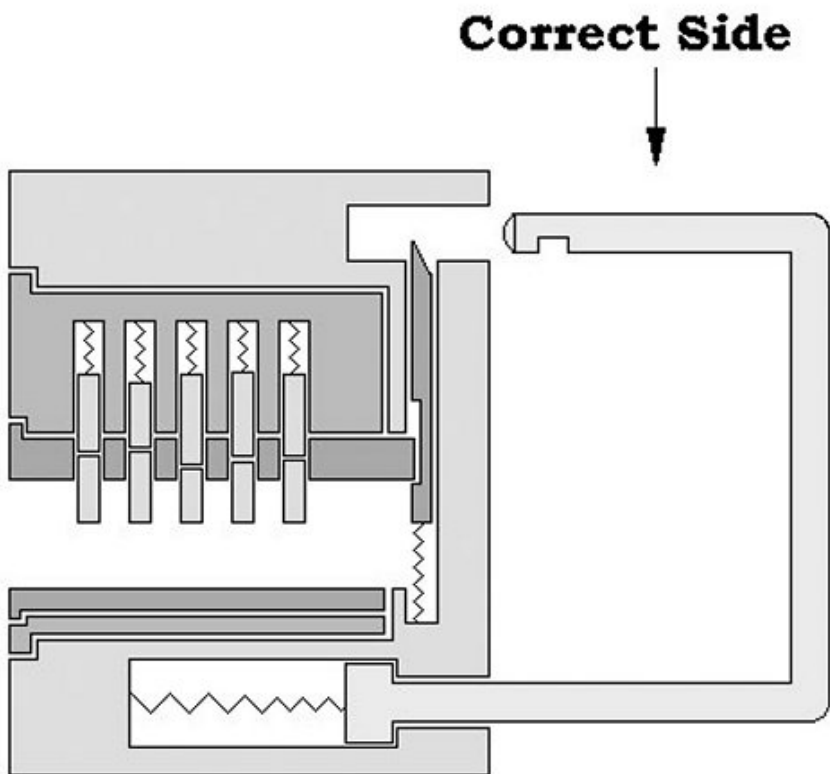
Snipping through

With a strong bolt cutter, you can snip through bolts up to about 8 mm in diameter.



Pay attention to the right side!

With snipping through or cutting through (will be discussed in the next section) it is very important which side you separate the bolt. If you choose the wrong side, then the bolt can't turn, despite the fact that it is completely separated. It must be the side which would fully leave the lock if opened normally.



With large diameters (above 8 mm) or when there has been high-quality steel used, it is not possible to snip apart the bolt with a bolt cutter. No matter how hard you press, if it has been built with this special metal, then it will only be possible to squeeze, but not cut through the bolt.

Cutting Disc

Sometimes there remains no other option then to cut through the bolt with a cutting disc saw. Pay attention once more to the correct side and absolutely wear safety goggles. Cut carefully and watch for sparks which may pose a fire hazard, ex. in basements.

With extremely hard bolts, it may be necessary to use a diamond cutter in order to be effective. With normal discs, you simply won't get anywhere (the discs "burn up.")

A cordless handheld cutting disc is preferable in all cases, because you are mostly working in tight quarters without an available outlet.

Padlock opener

There are special gadgets for opening padlocks. They work with leverage strength and try to push the bolt out of the lock.

If you have to open a simple padlock, this tool will do it in a matter of seconds. Set up the leverage tool, hold without slippage, and with a little strength application the bolt is out of the lock.

These tools have no chance against massive padlocks. The strength doesn't suffice to pop out a 12 mm wide bolt from its lock. At any rate, the lock will be likely so damaged from the attempt that using a cutting disc is your only choice left. It will be too warped to be opened simply with the normal key.

Drilling

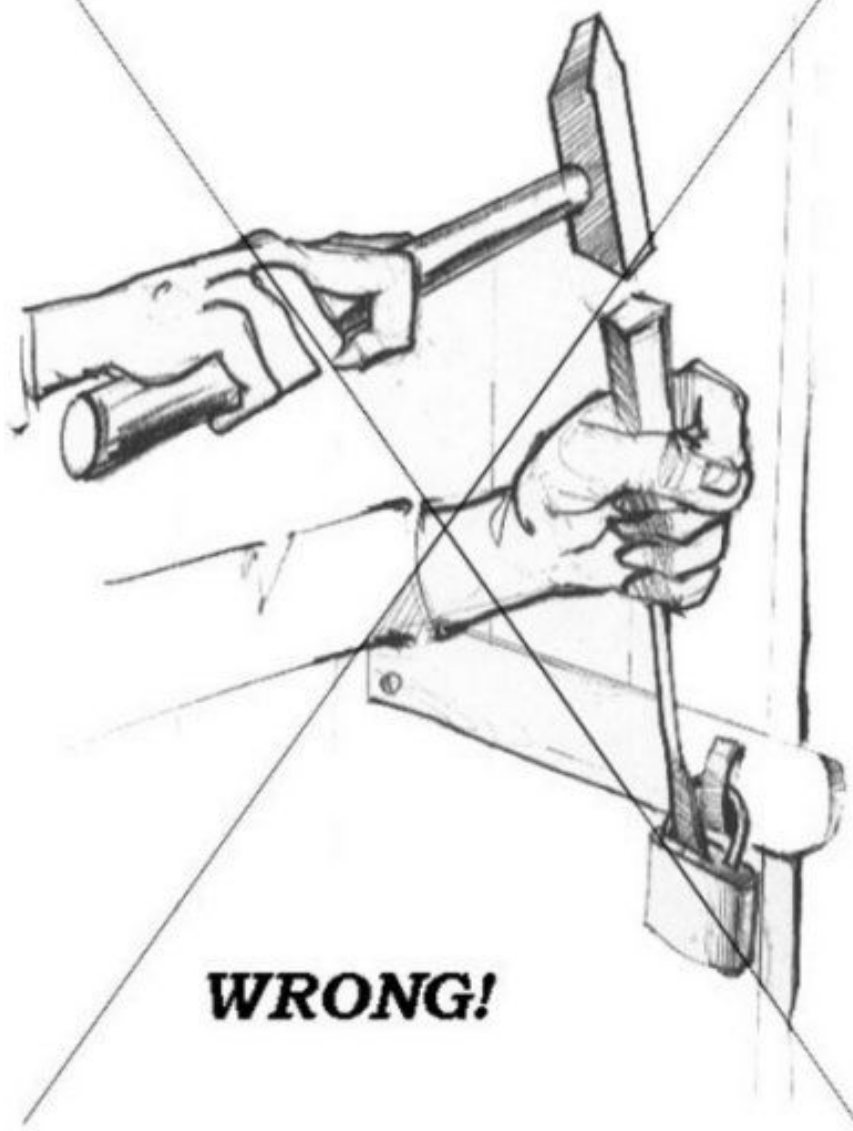
You could drill through simple padlocks. However, there are some hindrances which could provide difficulties for you. Any object which you wish to drill must be held properly fast to avoid it turning with you. To correctly secure a padlock is a difficult task. To hold the lock with one hand and drill with the other increases the risk of injury. Besides that, the drill would likely strip or just break.

A good likelihood would be to use an assistant with a handheld vice to hold the lock fast in place. It would still vibrate, but at a manageable level. The danger of slipping is still present, but at least the drill won't land in your hand!

The exact procedure for drilling is outlined in the chapter "Cylinder Locks."

Don't hammer!

With very simple padlocks, it is possible to hammer the bolt out of the lock. You could choose this method if you have no tools other than a hammer.



Unfortunately, the latch (on which the padlock is mounted) will almost always be damaged by this approach, and with stable models, this is simply not possible. It's therefore recommended to refrain from this layman's technique and simply not try it. Besides its ineffectiveness, this technique brings with it a very high risk of injury, as the author knows from personal experience!

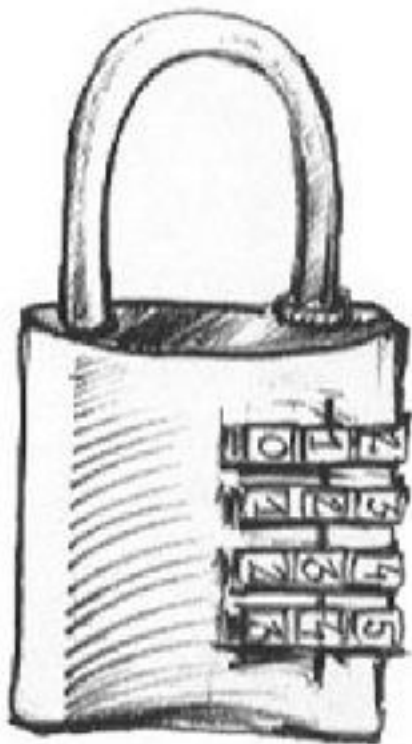
Demount the latch

Once in a while, it is simpler to demount the entire latch which holds the padlock instead of destroying the lock. Often these latches are shabbily mounted, or with old doors, the wood is rotting and the screws are loose.

It can be more effective to remove the screws and newly remount everything afterwards. The decision whether or not to use this method depends on the condition of the door and the strength of the latch.

Combination padlock

Many padlocks with number combinations allow themselves to be opened in just a few moments. The bolt will release when all the correct numbers are in place.



The tension rests on the bolt.

If there is no tension on the bolt, then all the discs are equally difficult/easy to turn.

Pull on the bolt and arbitrarily choose a number wheel to turn. One will begin as the first to grind. Finger-feeling is required here to tell the difference between normal turning and grinding rotating. Don't pull too hard, though, or else the wheels will be blocked.

Because of imperfections of these locks, the first disc has begun to bind. Continue turning until you feel a "give." This wheel has released its hold on the bolt and no longer prevents it from springing out. Continue the process with the next wheel. Sometimes you can even hear an audible click. Repeat the process as often as there are number wheels.

The progression of order for when each wheel binds is not pre-determinable and varies by each lock.

Ward Padlocks

Padlocks with ward keys have gone somewhat out of fashion, but are still used in basements and on lockers. The locking mechanism is not complicated and

almost the same as that of a variegated warded lock. Therefore, it makes sense to pick it in the same way.

You will be able to unlock the majority of padlocks with four or five different pick forms. These are available in specialty stores, but you can of course make them also yourself. (Same styles as the variegated warded lock.)

Insert the pick in the lock and rotate with soft pressure. The rotation direction is clockwise – at least the author has never seen anything else. As soon as resistance from the first pin is felt, begin to lightly shake the pick and then continue turning.

Put the lock on ice!

A very good method is to deep freeze the padlock.

In chemical specialty stores, there is liquid nitrogen available. With this chemical, you can freeze the lock and bolt until they are brittle and will break easily with a hammer.

You have to dunk the lock into the container with the chemicals. Remember that it will require several minutes to lose enough warm energy to become brittle.

Certainly to reach the temperature of -200° or less!

When the lock is cold enough, hit the bolt with the hammer and it will shatter like a piece of glass.

An alternative to the liquid is a freezing spray which is clearly easier to handle. Unfortunately, it doesn't work as well at deep-freezing. But for padlocks or other bolt locks, it should be enough anyway.

This method requires much experience and is relatively not dangerous. It should be used as a last alternative if all the others have failed. Besides, the liquid nitrogen is not exactly cheap and must merit the investment.

A reason for the investment is clearly present when you are dealing with an exceptionally massive padlock. If such a model is defect or stuck, this may be your only possibility to open it.

Important precautionary measures with this method:

Wear heat insulating gloves

Wear safety goggles

Store liquid nitrogen carefully and out of reach of others

Beware of dripping or splashing

Note proper environmental precautions

Bike Locks

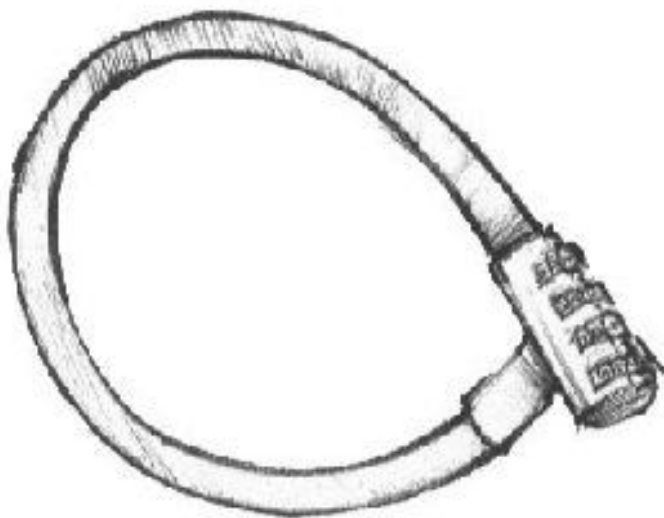
There are a large number of locks and safety available for bikes. Except for a few exceptions, most will be locked with cylinder or combination locks. The opening methods of the most common locks will be shown here. In the last few years, the quality has improved tremendously, making damage-free opening of locks not always possible.

Simple bike locks with cylinder keys

The majority of these are easy to recognize because of their thin design and bright colors. Their construction is also not of high quality. With a little practice, a simple bike lock will present no problems to you to pick. The most effective technique is raking because the majority of bike locks use disc tumblers and are imperfectly constructed. Within a short time, the bolt will spring out and you can separate the lock. Jiggling can also bring quick successes (Test keys will be discussed more in the chapter “Car opening”).

Bike locks with combinations

Everyone knows these simple bike locks with 4 number wheels. They don't provide a lot of security, but it is still frustrating when one forgets the combination.



Of course, you could try all the possible combinations, but with a little finger-feeling, the below-described technique will also work.

With this easily learned technique and a little patience, it is possible to open the majority of these locks.

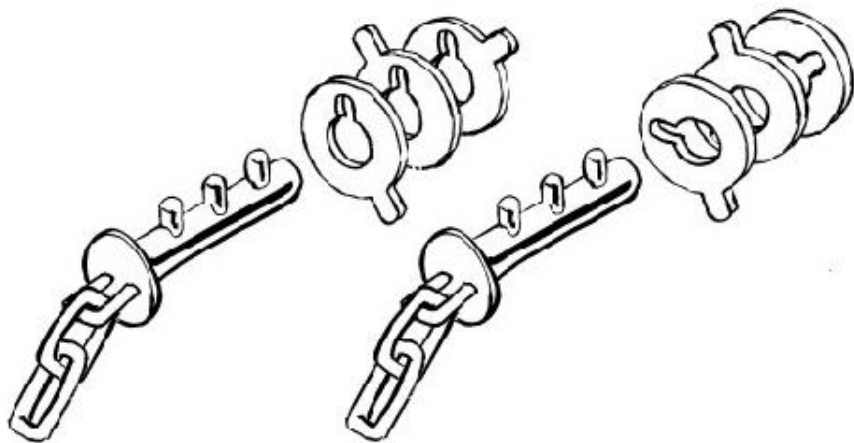
With combination bike locks, the number wheels grip onto the bolt directly. This ground principle is the same with all models. If the wheel is on the right number, nothing blocks the bolt. It doesn't matter what the quality of the lock is. With practice and field experience, the number of your failures will drop and you will be able to unlock even good quality combination locks.

However, there are still locks which simply refuse to unlock. It is a matter of feeling to be able to decipher whether a number wheel is standing in the right or wrong position.

A good method is to begin from the right and work towards left from

wheel to wheel. That means, that when you have a lock which has a combination of, for example, 1 2 3 4, begin with 4.

Pull the lock apart with somewhat more strength than you would use to normally open it. Turn the first wheel from the right. The exact strength of the pulling depends on the size and quality of the lock. Stop at every number and turn the number wheel halfway before and after the number. If you are at the right number, you will note it immediately, because the flat plane of the first wheel will release the lock. From there, there is no more resistance to expect. The pulling tension will be transferred to the next wheel. Concretely, that means that the second wheel will move with the first.



The neighboring number wheels always turn a little bit with one another, but in the case that you have the right number, this will become much clearer. Another strong confirmation is that it is harder to push a number wheel from the right number to a wrong as it is from wrong to wrong.

If you have found the first number wheel's number, then continue to the second wheel. Turn to a number, continue the process, but instead of shaking this second wheel, turn that of the number which you now know. Move the wheel very quickly a half-number before and after without forgetting to keep the pulling pressure present. The wheel must really vibrate. If it is the correct number on the second wheel, it will rotate with the first and the both wheels will move simultaneously. Now begin also to move the third wheel. It will begin to clearly jiggle. If there is absolutely no movement on the third wheel, then move the second wheel one number further and try it again.

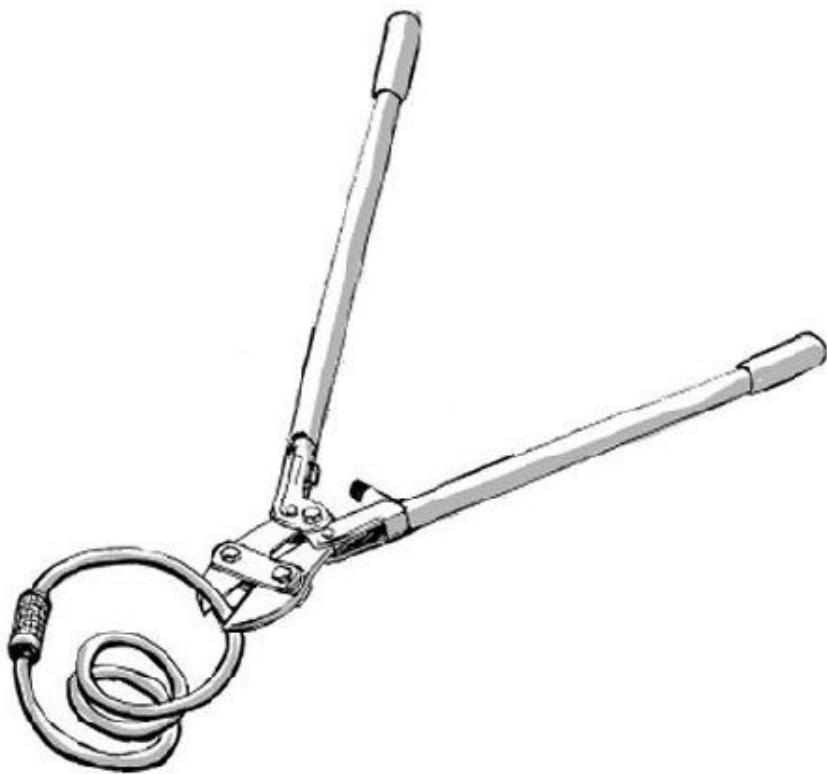
As soon as you know two numbers, continue the pattern to confirm

three. Unfortunately, it can't be said which tactic you should use. Either ultimately shake the second wheel, the neighboring, or the far right wheel, in order to discover the third number. Perhaps you have to move the both simultaneously back and forth. Normally the correct procedure is quickly found in the situation.

The last number should be found by "trial and error." Try each number and each time try to pull apart the lock.

Destructive Ways

Unfortunately, many modern bike locks, because of their technical standards, can only be unlocked with a huge time investment. Several hours are no rarity here. Some models are downright impossible to open without damaging them first. Perhaps you don't always have the patience or time to open a bike lock without damaging it. Often the motivation or sense is lacking, when for example the key is missing and the whole lock is worthless and can safely be destroyed. To manufacture a replacement key (ex. with impressions technique) is difficult and uneconomical in such a situation.



Often only a chain lies behind the colorful plastic casing, which can be simply cut through with wire cutters. Select 2-3 links (single wires) out of the whole chain and slice through them, and then continue with the next chain.

Most of these chains haven't been hardened, so as a result you could

even saw through with a commercially-available hand saw. The handling of the saw isn't always easy because the individual chain links can get caught in the saw teeth.

Saw carefully to avoid injury!

You won't always see these simple bike locks, because there are others as well – the good and the very good.

Bolt locks out of titanium, chain locks out of hardened steel chains, armored cable locks, Kryptonite locks...

With a bolt cutter, no matter how large, it is impossible to cut through a U-form bolt. No matter how hard you press, you probably won't even make a dent on the bolt. Such cutters are never in the position to cut through these extremely strong bolts.

If you must open one of these special bike locks, it would benefit you to use a cutting saw. You will absolutely need a diamond disc in order to set a decent cutting tempo. You will need several discs regardless and it will certainly not be a matter of minutes before the task is complete.

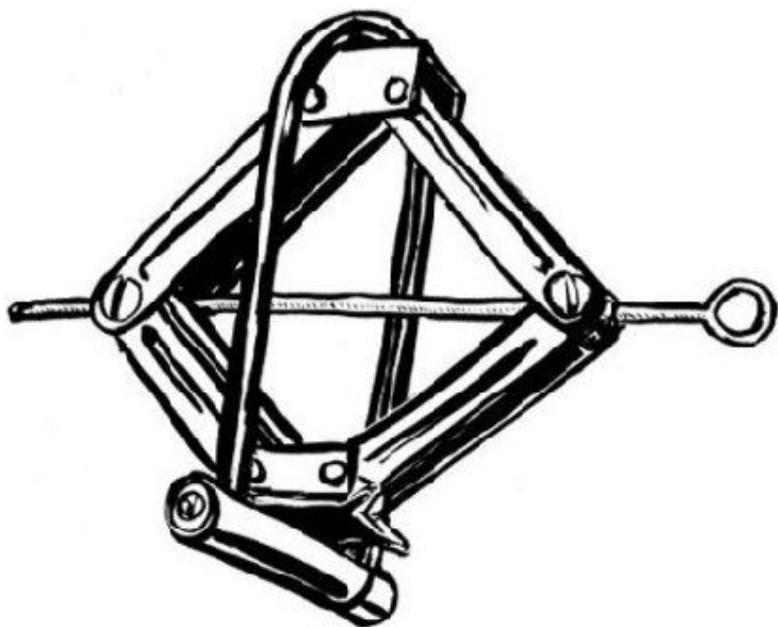
The small hand gadgets (mini-tools) are wonderful to handle.

You should avoid trying to cut through the bolt itself because that is the strongest part of the lock; try cutting directly in the locking closure instead, ideally by the hole where the bolt is inserted, because this is the weakest part of the entire lock.

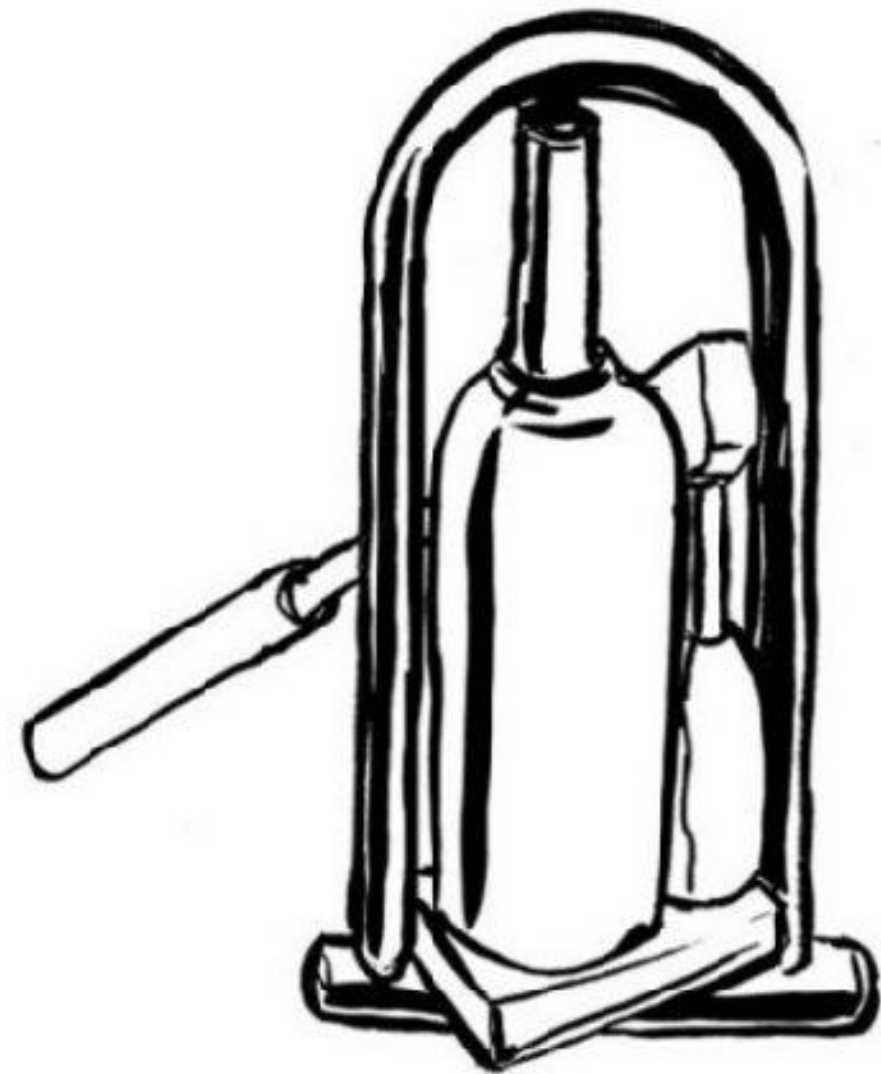
With older bolt locks which still have plastic casing rather than copper, first remove the casing. The cylinder will be often held in place with only one single pin which you can remove. It is around the end of the keyhole, has a diameter of about three millimeters, and is easy to recognize, even when it is riveted or slatted. Drill this pin completely away and pull out the cylinder with a pair of pliers.

With a Car Jack

There is a trick with which the author always had success. Wedge a car jack into the bolt lock and pump it up. The lock will give way shortly.



If you prefer a professional work method, you should purchase a hydraulic block in a specialty shop (auto parts). There are special gadgets which create up to 8 tons of pressure. With this tool, it is possible to snap open even the most stable of bike locks.



With Cold

This method is described in the chapter <Padlocks>.

Windows

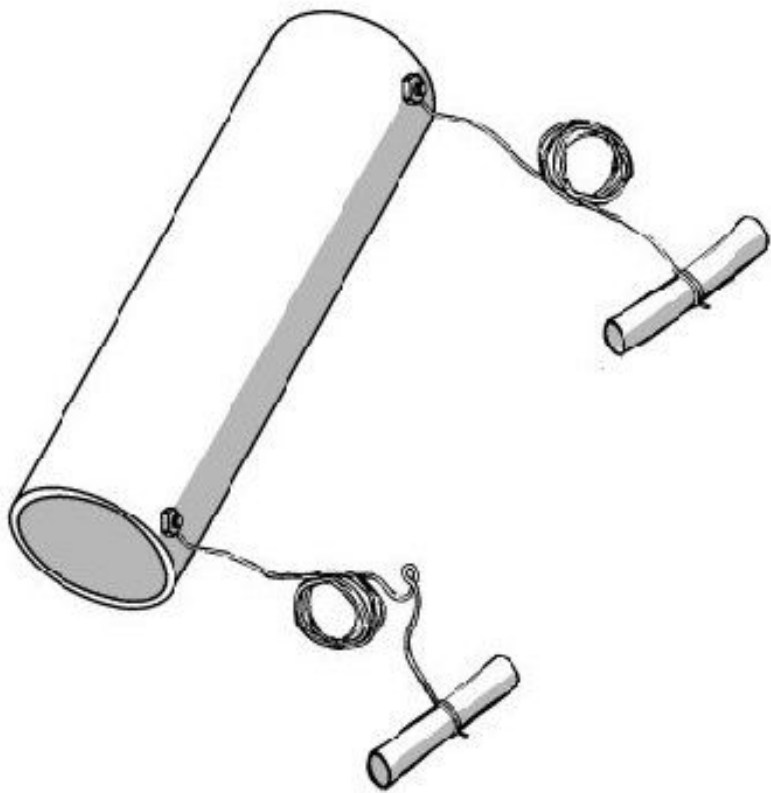
The door lock mustn't always unlock to be able to gain access to a house or apartment. Walking around the house, it is easy to ascertain whether a window is tipped open. If you find one such window, it is a good alternative to the door.

To move the handle of the window, it must be closed. For this job there are several possibilities and various opening tools which are all similar and can be arbitrarily combined.

For many years, the author has primarily used a rope. He preferred a self-assembled tool.

Pipe Method

You require a plastic pipe or piece of strong garden pipe. Fasten two ropes to this piece of plastic pipe which is approximately 15 cm long. One rope should be longer and fastened above on the pipe. The shorter part should be fastened under the pipe. When you wish, grips can be tied at the end of the ropes for comfort.



An easy tool

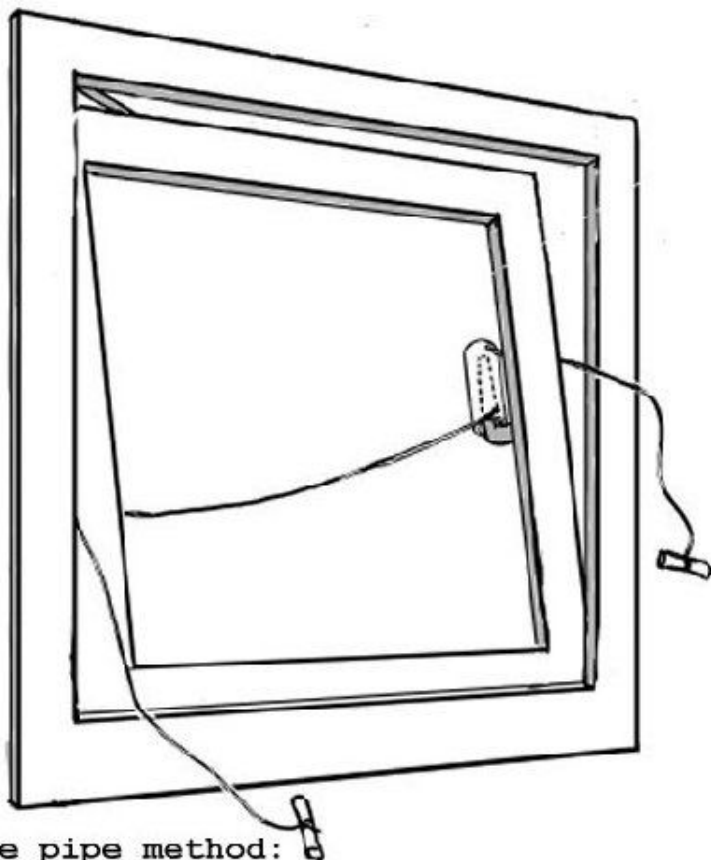
The pipe must be moved over the window handle - a difficult job which requires much luck. This is easiest to negotiate on the handle side of the window.

The short rope should be on the handle side and the long should cross over the window and come out the other side.

If you pull on both strings simultaneously, the window will close as a result of the contrary force and you can then move the handle of the window with the long string.

The window is open!

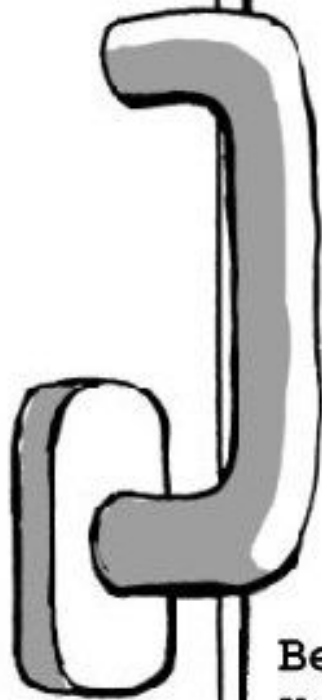
You just must adjust your strength based on your feeling.



The pipe method:
Simply work the plastic
pipe over the handle

Noose Method

With severely bent or crooked window handles, it is not possible to fit a plastic pipe over them. The noose method must be used.



Bent Window
Handle:

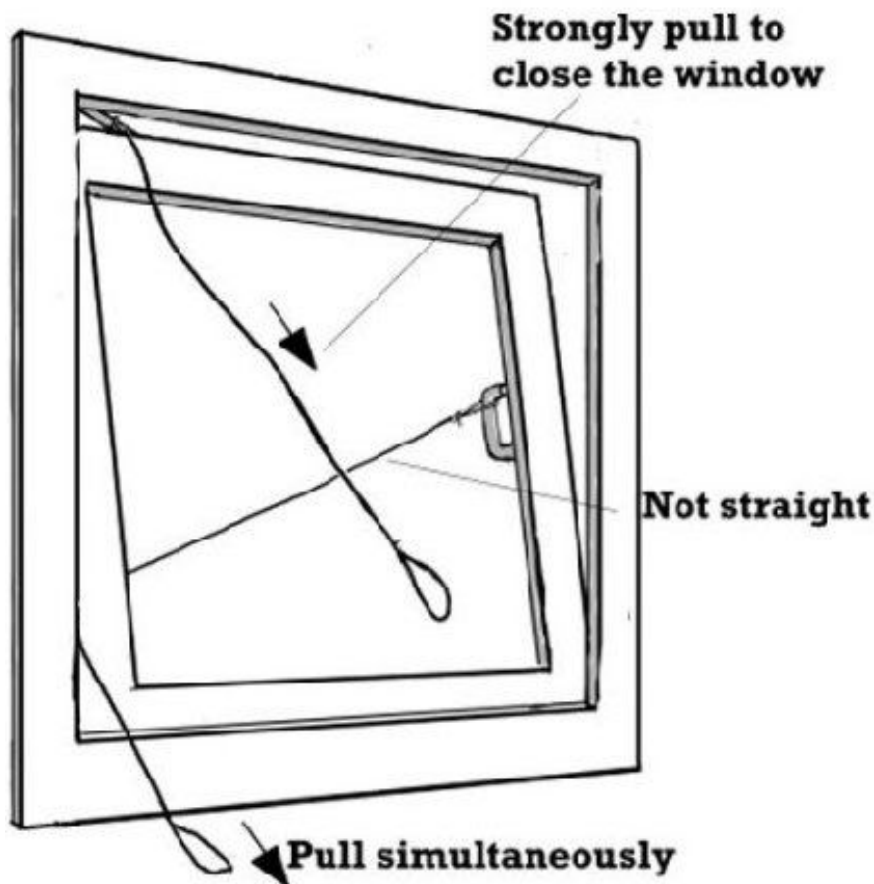
Can be even
more bent

If there is no plastic pipe available or the handle is bent, then it is enough to lay a rope over the handle.

Make a noose with rope and lay it over the handle from the handle side. That can be difficult if there is only a little room at the window opening. With a help tool, ex. bent wire, it is easier to lay the noose over the handle.

As soon as that is accomplished, pull on the string to tighten the

noose. Then feed through the string to the other side of the window.



The biggest problem is closing the window. This is very simple with a suction cup, but one doesn't always have such a tool at hand.

There are, however, alternatives to suction cups.

Tie a rope to the top of the window frame with a good, secure knot. Pull strongly to close the window. Simultaneously, the other string can pull the handle of the window. The biggest danger is that the second string will slip off the handle. Therefore, the noose that grips the handle must be very tight. Also, the string shouldn't be exactly straight, but rather should angle downwards.

Tape Method

It is not particularly difficult to open a window with tape and a string (in an emergency, one can do without the string).

A wide industrial tape is obviously the first choice, but one doesn't always have this at one's disposal. Make a noose with the tape (sticky side in) and tie the rope to it. If there is no rope available, then the tape must act as rope. To this end, roll the tape together so that it functions as rope. The noose will be placed on the handle and with a short jerk, secured to avoid slipping. The rope will cross over the window and out the other side in order to pull the handle. Sometimes it is enough to close the window with this string alone and then pull the handle. When this isn't enough, then a second string must be used.

The Weight Trick

One more approach should be touched upon. A two part window opener where the upper part topples under from its own weight – if this is stuck on the handle, the window is pulled closed with a suction cup. The weight and the handle part are joined by a hinge. Through the momentum of the falling weight, the window handle is brought under. A good idea, and it bypasses the timely process with the rope, however it can easily happen that the handle is pulled too far under and the window will close entirely.

Cars

General Hints to Opening Cars

If you own a car, you should have a back-up key somewhere in a safe place. If you lose your key or lock it in the car, then you have no problem opening it again. If you haven't done that, then you stand to experience many problems. Before you lay a hand on your car, check and see if there are free ways of getting your car unlocked. As was discussed in the chapter "Important Hints," many insurances and auto clubs offer this service free of charge.

Individual auto types won't be described here, but rather methods that should apply for all of them.

In order to be able to open cars, you first must know them. Examine a car door and become intimately acquainted with its inner workings. However, do this carefully so that you can put it all back together. Unscrew the armrest, the door handle, the window opener, the speaker. You will note that certain elements aren't that easy to demount. That will give you a taste of the difficulties that you can count on while working with cars.

Pull the adhered plastic cover to the side and observe how the activating lever works. Try to find the places where the mechanism is sensitive, but make special note of the locations which could be easily damaged. Joint locations are particularly vulnerable, locations where the levers are held together with bolts.

The examination and study of the mechanics is very important and if possible, you should study various auto brands in order to get to know the various functioning methods.

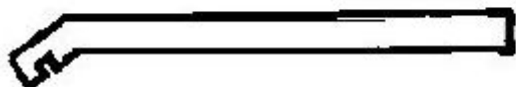
If you are in a serious emergency situation and you shine a flashlight in the hull of a door, you will see various elements. It can be a large advantage to be able to identify the various individual parts.

Picking is a good beginning!

For starters, you should try to pick the lock. Picking is the best way to open a car, because it carries the least risk of damage. The only misfortune that could befall you is a broken pick or a bent dust cap. With a little caution, you can also avoid these dangers.

Many cars today have security systems installed, but the majority are still fit with disc tumbler locks.

With a little luck and the correct tools, it is possible to unlock a car.



Tension wrench
with nut

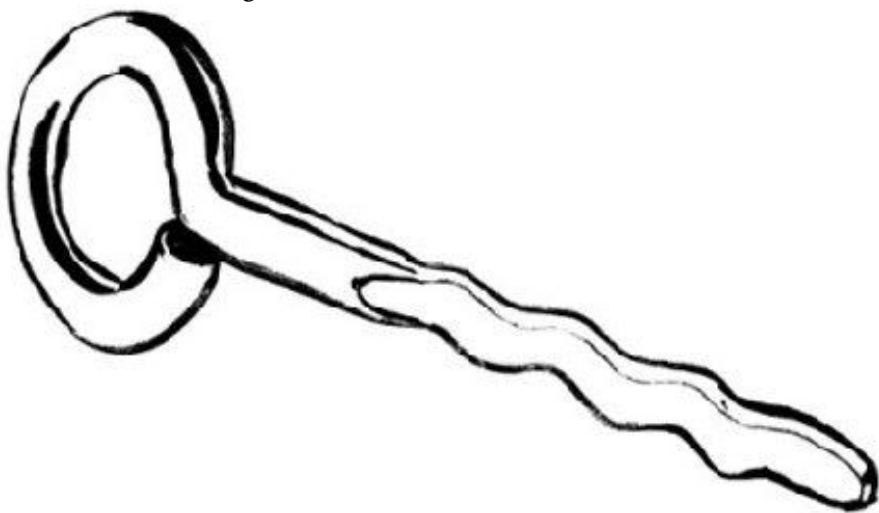
Don't be nervous about the dust cap which lies at the entrance of the keyhole to block out dust and dirt, because as soon as you insert the tension wrench, it will hold this cap open. You can move the pick unhindered. If the tension wrench has a small nut, then it is guaranteed not to be in the way.

If you aren't successful after a few minutes, abandon picking and choose another method. 10-15 minutes is a good middle ground. You haven't lost much time if it doesn't work, but you've given it a real chance.

With unlocking cars, it's better to work on the driver's side, because you can be certain of which direction you must turn in. With the passenger's door, it is always a crap shoot, because sometimes the locks are built in backwards. It is a terrible experience to tiresomely pick a lock, only to find you can't open the door because you have chosen the wrong rotation direction.

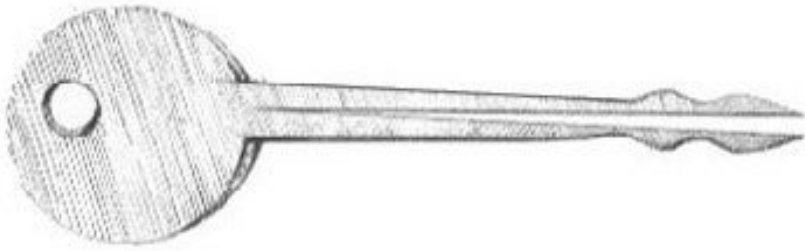
The Shaker as wonder-weapon

One can obtain frequent success with jiggling or shaking. There are computer-manufactured picks available in specialty stores which cover a multitude of various key types. With a little luck and joy of handiwork, you can manufacture your own yourself. The test key is inserted in the lock and moved very quickly up and down while simultaneously turning in the correct direction. It should also be pulled and pushed in a few millimeters. That must be a very quick, repeated movement, hence the name: You shake the lock open. With older locks, the prospects of success, already high with this method, are even higher!



**Make various shakers with
various patterns**

Double-sided picks are also very successful.



**You should make several
various models of this tool**

Car locks are equipped with springs!

Always keep a screwdriver at hand, because it can be hard simply to move the lever systems downward with the tension wrench alone. If you don't have a screwdriver by your side, then you will first have to go get one and all of the springs will spring back, something not in your interest.

Not all locks have the same number of discs. Sometimes the lock for the trunk or the back door has fewer discs as the front door. Or, perhaps two locks share one key where the back part of the key unlocks the car door and the front half, the trunk. There are also some "workshop keys" which don't have access to the trunk.

Therefore, individual locks on the same car can be of various difficulty levels to pick.

It never hurts to try the back door for a few minutes.

A large advantage is that nearly all back doors and trunks rotate clockwise to unlock.

Hint:

In the case that you're not in the position to make your own tools, or if you don't want to do this, then there are a large amount of tools available in specialty stores for opening cars.

With the Slim Jim

The Slim Jim is the most important tool for opening cars. It makes quick success of many car types and is therefore indispensable, despite the fact that many recent car models now build defenses against this technique.

It is about 50-60 cm long, 1.5-4 cm wide, and 1 mm thick.

It will be used with various methods to cover the largest number of differing locks.

In a particularly tight door space, you should use a thin Slim Jim or one with a rounded shaft.

Feeling is better than strength!

To avoid damaging the lock or the sensitive inner workings of the door, never work violently. You can never forget that there are cables, speakers, window openers, levers and other important elements built into the car door. The levers are very quickly hung up or a cable pulled from its outlet, something with grave consequences.

If you are very unlucky, it could be that the door can no longer be opened from inside with the door handle.

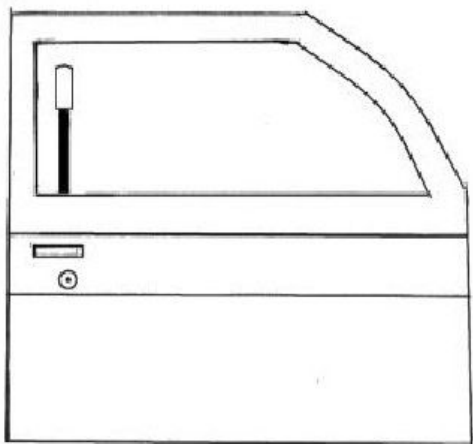
Remain unconditionally on one side of the car to leave at least one car door untouched. In the case that you don't succeed and must call a specialist, tell him of your attempts and above all, on which door you have tried your luck.



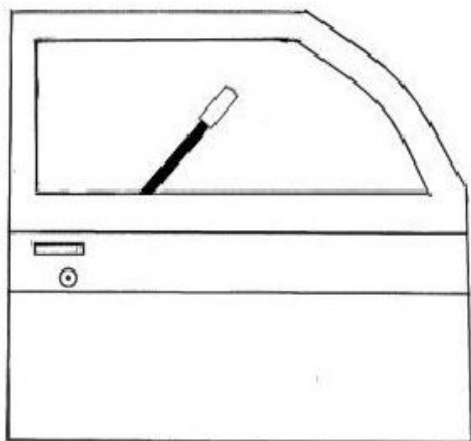
Procedure:

In the simplest case, the Slim Jim will be inserted in the space between the window and door in the direction of the lock. The ideal point to insert the tool is exactly in the middle of the exterior handle.

The danger of important components which don't belong to the lock mechanism being in the way is the smallest there, and you are close to the lock.



**Begin exactly
over the lock**



Next Step:

**Move the Slim Jim
at various angles**

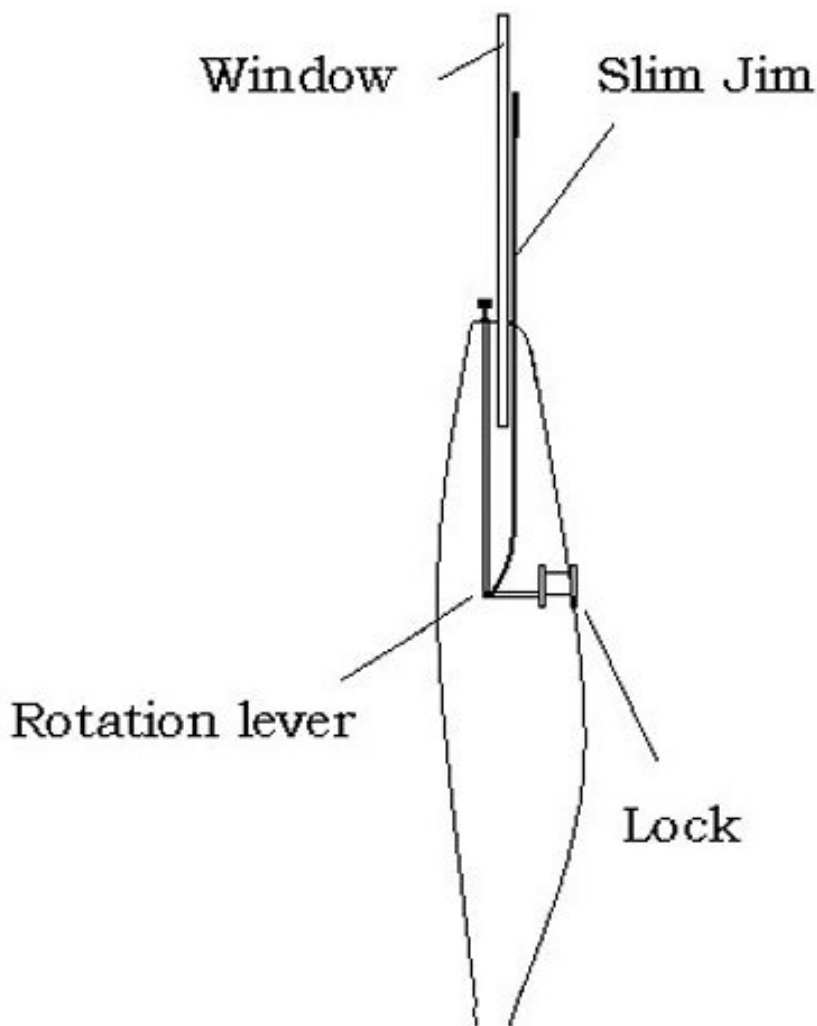
With many cars, the system is mounted onto a type of tilted lever inside the door, which you can lightly manipulate with the Slim Jim. If it doesn't work on the first try, it usually works to move the Slim Jim at various angles. Try out various angles as you push the tool downwards, first steeply then lightly angled, until you reach the lever and the knob pops out of the door. However, never use a lot of strength; you need no more strength than you would by lock picking, because the mechanics are generally very sensitive.

It is also recommended to try out various Slim Jims unless you are

exactly sure of the inner workings of the car.



If you are unable to find the correct point, it could be that the Slim Jim is meeting nothing but air. In this case, there is a loophole: Bend the tool! Especially with cars which have very wide doors, this is a good way to reach the right point. Bend the metal band into the shape of a J and try again.

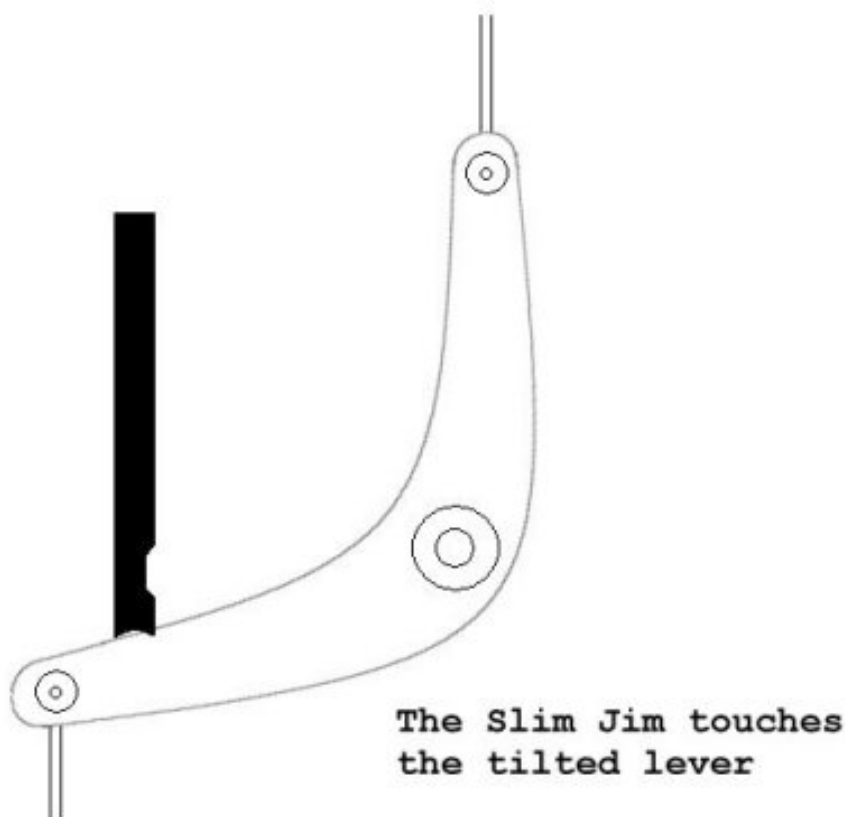


Whether the tilted lever needs to be pushed under or pulled up is different from car to car. It is impossible to generalize.

Remember that there are thousands of types of cars and each individual car type cannot be discussed in this book in detail.

However, you can feel your way. If the tool is in the door and you feel a lever or rod, then try it out to see if it is the right one. If it moves the lock knob, then you know you are on the right path. But if it moves the interior door handle, then you have surely landed on the wrong lever. Stop, pull out the tool, and begin anew. If the exterior door handle begins to move, then you're not exactly right, but at least you're close.

If there is no tilted lever built in or you cannot find it, then you must manipulate the mechanism of the cylinder directly.



Many manufacturers protect their cars against this tool. They build a protection shield under the rubber window trim to prevent the insertion of the Slim Jim. However, often the entire length isn't protected, rather just above the lock/over the exterior door handle. In a window corner, there is usually enough space for a small tool.

If the tilting lever is protected by a shield, then a normal Slim Jim won't get you anywhere. Often, however, a modified tool will work at finding a small hole and moving the rotation lever or cylinder mechanic.



A Peg Leg Jim is also able to use the tiny holes in a shield



If the tilting lever is only accessible from above, then it is recommended to use a thin pick.

Make it easier for yourself!

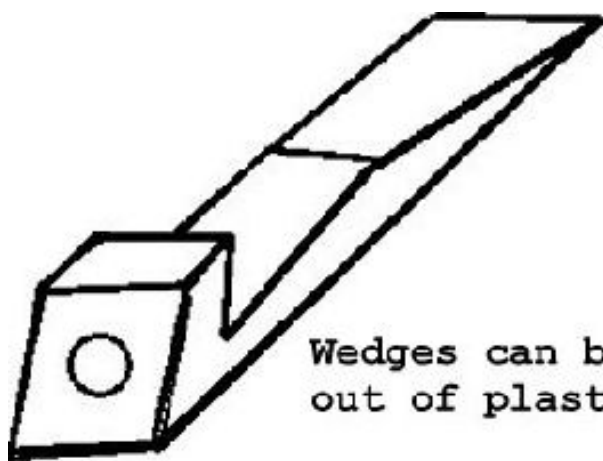
Because the workspace is oftentimes very small, it can be to your advantage to insert a small wedge in the groove. If the space is made larger, then there is less damage to the groove, the window stays clean and unscratched, and the tool is easier to insert. You will feel a noticeable difference when negotiating your way through the door, because the tool won't rub anywhere. However, don't overdo the width of the wedge; a few millimeters will usually do. You don't need to fit your hand in. If the wedge is too large, then the metal and the rubber window trim will bend too much and won't spring back into their original position – the gap will remain.

Warning!

Be extra careful in winter because the glass will be brittle from the cold and can easily break.

The wedge doesn't always fit into the gap easily. However, there is a little helping tool which will simplify things. You should insert plastic strips beforehand. With this, you are protecting the window trim and preventing glass damage. In specialty stores, there are special plastic cards available, but a cut-up plastic bottle or old telephone cards accomplish the same task. Insert two plastic strips on top of one another in the same place and insert the wedge in between.

If you don't want to or can't use a wedge, then move the Slim Jim between the plastic cards. It is also a quick and effective protection to operate the Slim Jim between the casing of a credit card.



Wedges can be made
out of plastic or wood

A large advantage of using a wedge is not just unrestricted movement of the tool, but also the possibility to light the inside of the door and work with visual support. A strong halogen flashlight or other flashlight from a specialty store should light up the whole door inside. With luck, you could even see the ideal place to insert the tool. At least you can find out where you shouldn't insert the tool.

Dangers and Obstacles:

Never let go!

You should never let go of the tool once it is in the door. It could completely fall in and block the mechanism or cause other damage. If the grip of the Slim Jim falls under the edge of the gap, there is no simple way to fish it out again. Only with much time and energy will you be able to accomplish this. Therefore, hold the handle fast, even if you think that it can't fall in because it is leaning on something.

Stuck!

Even when one is careful, it can happen that the Slim Jim gets stuck and can't be pulled back out. Real feel-work is now required. Try to find out where and how the tool is caught and gently free it. Never pull hard or remove it forcefully, or you will be guaranteed to damage something. Have patience and don't lose your nerves.

Success!

If you unlock the door, then open it first before removing the tool. It could be that you remove the tool and the door locks itself again. Remove the wedge and plastic strips carefully, take your key and try all the functions with your door opened. Try to open your door from inside and outside. Test the window openers and speakers, etc.

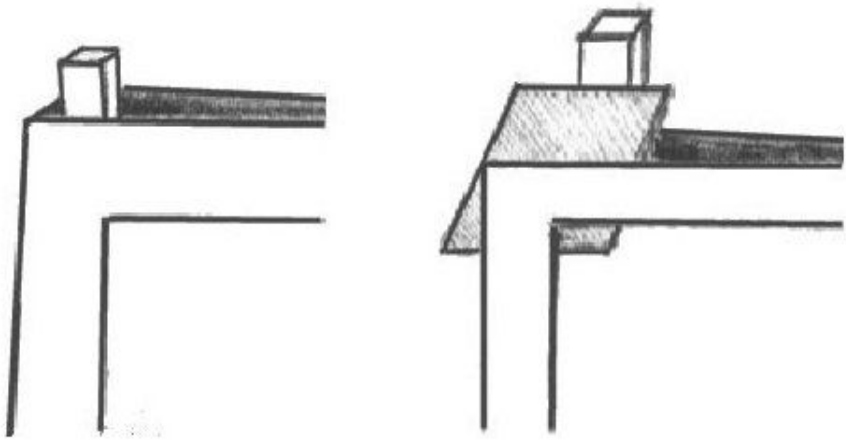
Tip: It's recommended to open a window or another door to avoid being locked out again.

If something doesn't work or you have damaged something, then repair it – immediately!

Bend open the door

If you haven't been able to succeed with the methods discussed to this point, then you should try to bend open the door and create a workplace. Do this very carefully and only as far as absolutely necessary to avoid risking damage.

Insert two plastic cards on top of one another in the upper back corner of the door. If you have special insertion cards at your disposal, you have the advantage. If not, it isn't a tragedy – old telephone cards or something similar can be used. You can freely insert a plastic or wooden wedge in between the cards without worrying about damaging the door frame.



Bent open door with wedge and protection cards

A very large help at increasing the space between door and frame is a vacuum lifting pad, like those used by glass workers. You apply the tool to the window and strongly pull the door towards yourself. Then there is a space, guaranteed to be without damage, in which you can insert a wedge or inflatable cushion. It goes without saying that you should use this tool as close to a corner of the door as possible in order to take fullest advantage of its force. Various models are available in specialty stores, some even with lever mechanisms.

Cars with frameless windows are the simplest for this job, but the danger of breaking the window is higher.

Tipp:

It's always worthwhile to try and see if the window can be pulled a few millimeters downward with the vacuum pad, before you pull the door open. Sometimes that is possible and then there is a small window space within which you can comfortably work.

An inflatable cushion is often very helpful with expanding a work space without damage. It can be inserted in a door which already has been opened by wedges and vacuums, and then pump it further open. The distance of the opening is thereby very easy to adjust and there is almost no possibility of damaging the door or frame. You should get a

cushion if you will be opening car doors often.



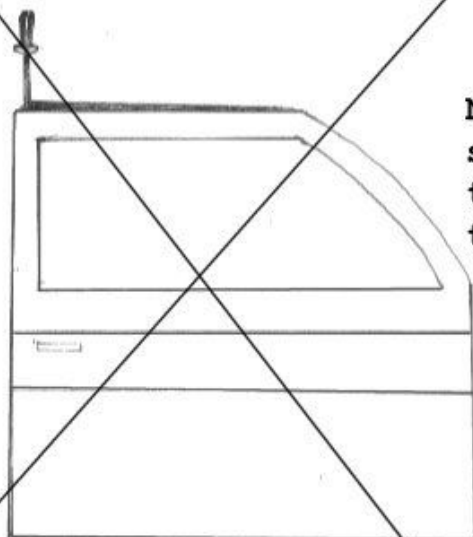
An inflatable cushion is a tool with many applications

A very good tool next to the inflatable cushion is a mechanical space creator. Insert this practical tool fractionally in the gap. With a screw, it will allow you to adjust to the desired opening. This tool can simplify work not only with cars, but also with apartment doors.

With this enlarged work space, it is child's play to insert the required tool into the car.

Never with a screwdriver!

You should never use a screwdriver wrapped in a towel to pry open the door. It is guaranteed to cause damage, like paint chipping or permanently bending out the door so that it doesn't spring back. Many windows have also been broken by this method.



Never use a
screwdriver
to pry open
the door

WRONG!

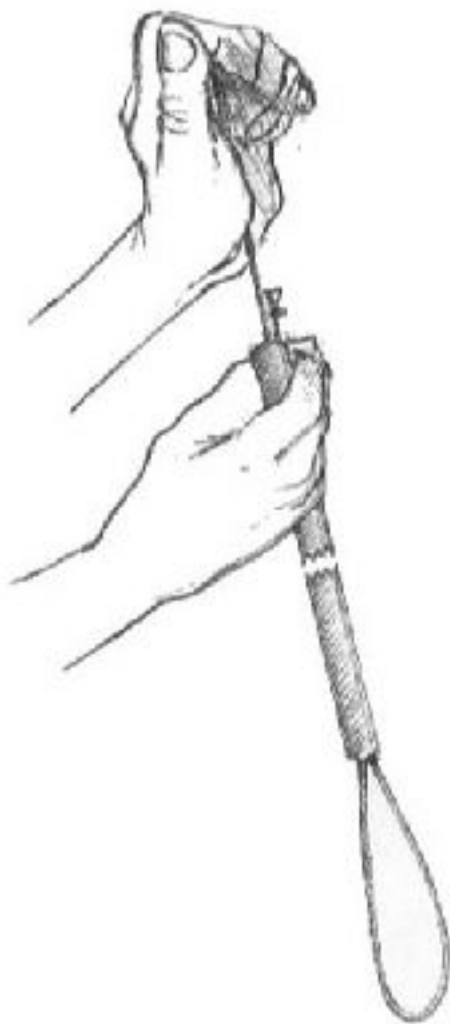
With a Bowden wire

You know of the Bowden wires which are, for example, used as brake wires for bikes.

The advantage lies in your hand: the casing is flexible and can be bent without kinking. The diameter is only a few millimeters, but the most important quality is that a wire can be thread through this. You can buy a Bowden wire in any bike or auto parts store.

The ends of the wires are diffused, grab them from here (be careful, sharp edges!). Before you squeeze the Bowden wire through the door space, lay a piece of cardboard or plastic in between to keep the paint from chipping and thread a thin wire or rope through the Bowden wire. Tie a noose in this wire. A drop of oil or fat will make the threading of the wire much easier and protect the rubber casing.

With light circle movements it isn't difficult to shove this thin and bendable metal tubing through the gap. Work carefully to prevent damaging the frame.



You can bring the noose into the right position very easily from outside of the car and unlock the door. Whether the knob must be pulled or the handle lifted isn't relevant. With this simple and valuable tool, you can reach every lever in the car.

A wire (thin nealed wire) is somewhat more advantageous to rope, because it won't hang under like string. The wire can also be more easily inserted. Oftentimes it's enough to insert the Bowden wire just a

few millimeters into the gap.

If you wish to cut down on work, use the original wire which comes with the Bowden wire when you purchase it.

In the experience of the author, a combination of a Bowden wire (or another thin casing) with strong fishing wire is the ideal tool. Make a noose and simply feed the fishing wire back into the same casing and you have a noose which can be pulled closed, which is invaluable.

In the case that the diameter of the casing is too thin to string the wire back through, then simply lay the fishing wire alongside the casing and fasten it with tape in order to avoid sagging. You will prevent sticking by inserting a small piece of cardboard or plastic between the tape and rope. If you need this noose often, then a professionally made tool will be worthwhile.

If you need to pull a knob which cannot be gripped with the noose, then form a hook and pull with this.

Another good helping tool is electric cable casing. It is made out of plastic or metal and is normally used to install cables in the wall. It is very stable and yet bendable. You could simply shove this through the gap. With an attached hook, this tool is easy to manipulate and nearly unbeatable. A large advantage which the cable casing has over the Bowden wire: You have only one tool in your hand and it is therefore easier to coordinate.

Pushing the electric lock button

Many cars have an electric switch for locking and unlocking the car on the middle console or the armrests. With a long staff, you can easily press this button.

Where does one find a long enough staff?

If you can't find a long enough staff, then the answer is simple - just tape one or two shorter rods together. It doesn't matter if they are of the same diameter or strength. The thinner and stronger the material, the better, because then the door must not be bent open so wide. The rods should be taped together so that they overlap 10 cm. Strong tape should definitely be used.

Don't bend open the door wider than necessary with this method, either. The rods should be able to be inserted and manipulated. If the tool rubs a bit, it won't hurt anything. A squeezed frame is better than a permanently bent door.

Support the rods with the helping tools so that they don't kink and they easily reach the button.

Square shaped lock knob

A square lock knob isn't as easy to grab as a mushroom shaped one. With a noose, you can grab hold of the knob and pull it out. However, you can't operate the noose from above; you must use it from the side at an angle, or else it is guaranteed to slip off.

Another possibility is to pull the knob with a metal strip. Use a strong metal band (thin packing band) where one end is severely bent. Ultimately, the entire length will be bent to reach the knob.

Expand your work space with a wedge and carefully insert the metal band through it. Move the point of the tool towards the knob until you can wedge it on the side of the edge.

It is worthwhile to move the tool at various angles. If the angle is too flat, then the knob won't be lifted up, but if it's too steep, then the tension won't be enough to allow the hook to wedge it.

It is a method that will not always bring success, but it is always worth attempting. The author has been able to open many cars with it.

Electric Locks

Some car types aren't manually locked, but rather electrically. You can hear this electric system clearly:

CLICK-CLICK!

It's not just the sound that is so noticeably different from manual locks, but also the speed. Without delay, the car is opened or closed. These car types usually have the lever systems protected, however the electric contact/motor is often left free.

You don't have to lift, lay, or move anything. You just have to bypass the electric contact – CLICK – the car is unlocked. You will be surprised just how quickly this happens.

This is easiest to accomplish with a thin pick or rod.

Casement Windows

With older cars, casement windows were standard, but they are not seen as much today. However, they are still common on trucks and SUV's.

If your car has such a window, you can easily open it.

You just need a strong wire to make a tool. Bend it in the shape of a square U. Take off the wire handle of a bucket – it will work wonderfully for this job.

The wire tool should be stuck between the rubber frame and the glass. With a little luck, you can push the safety button and open the door handle at the same time. If this isn't possible, then bend two tools and use them simultaneously.

Lastly, reach into the car and pull the doorknob, lift the door handle, or push the electric locking button. If you can't reach these things, then simply use a tool as an extender.

S-Hook

Another good tool for opening cars is the S-Hook. It is often the easiest way to push up the lock knob from underneath and thereby unlock the door. This method is applicable to many different types of cars. You need a strong piece of wire which you can bend into an S-shaped form.

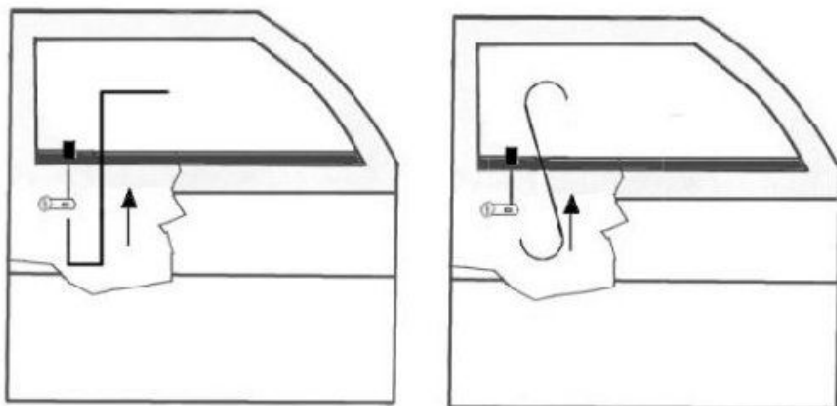


**It's impossible to imagine car
unlocking without the S-Hook**

Insert a wedge between the window and the door and insert an end of

the tool. If the hook is deep enough, then turn it a little so it is exactly under the knob. Watch the knob closely while you search for a platform or protrusion which you can probe with the hook. Lightly lift the hook upwards until the knob starts to rise. Because it isn't always easy to find the exactly correct point, you will probably have to try for some time.

As soon as the knob begins to move, pull up the hook.



Many technicians prefer a form which looks similar to a U, only squared. Whichever form you choose is purely a matter of taste. Neither one has significant advantages or disadvantages over the other.

It is not always possible to directly reach the underside of the knob. The position where the lever system is connected to the knob can also be a good goal point. With a flat hook, you can access this point in many cars.

The Lock Stab

The Lock Stab is a widely used technique which can be applied to many models. With a long, thin scribe or another pointy object, you can prod exactly under the door lock through the trim. Either you will touch with vertical locking lever that lies directly under the trim with the needle point or you will touch the locking lever of the cylinder. The locking system is attached to this lever. The method you use is obviously dependant on the type of car.

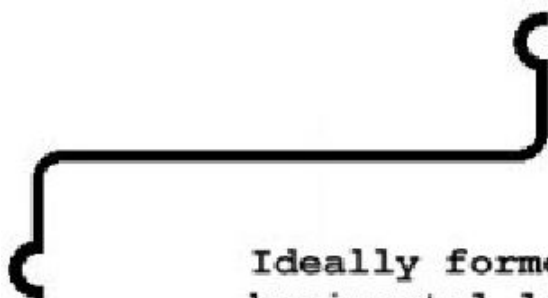
The remaining hole is so small that it is nearly invisible. A small drop

of glue will help keep the water out.

Horizontal

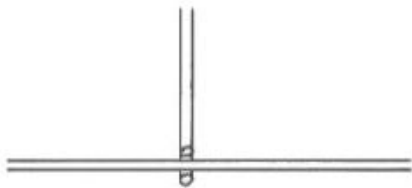
Many modern cars have the opening lever built horizontally and not vertically. There is no longer a mushroom-shaped or flat locking knob you can see and manipulate. To lock the door, there is only a small lever to press or push; it is almost always located near the door handle which is responsible for opening the door.

Cars with such horizontal systems are more difficult to unlock. Because there is usually a tilting lever or protrusion that the probe can land on, you must move the lever system itself. To this end, there is a special tool necessary. You must make this tool especially for this purpose, but it is needed for many of these types of autos. The procedure is always similar.

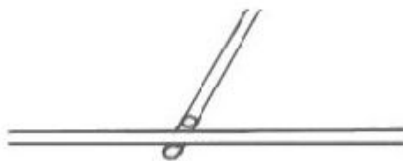


**Ideally formed tool for
horizontal locking systems**

Enlarge the work space with a wedge and if possible, light up the inside of the door. Perhaps you can even recognize some of the important elements that you must pay attention to. Carefully insert the tool. If it is deep enough in the hull and exactly under the lever system, rotate the tool so, so that it stands at a right angle to the door. When you've "trapped" a lever, then raise the hook; turn it until it has bound the lever. Through this clamping effect, it is possible to slide the lever back and forth.



**Capture of
the lever**



**Rotation until
clamping**

The car manufacturers are aware of this weakness, and have therefore built in safety measures. Sometimes that can make it very difficult to unlock the car. The levers will be hidden behind a safety plate to make gripping onto them difficult, and sometimes there is only a tiny hole of a few centimeters inside of which you must stick the hook. This opening is usually right by the handle or at the end of the rod (but it can also be in other locations).

Another variant is that the various elements of the levers are moved in a parallel way. It is then very difficult to recognize which lever is the correct unlocking one. If you pull on the wrong one, then nothing will happen, except that the door handle will move. Only by testing and through watching the handle can you detect the correct lever.

It can also be difficult if the lever is actually unprotected, but must be moved very high on the other side of the window. The hook must then be bent into a U-form in order to go under the window. Unfortunately, handling things in this way is much more difficult.

No Strength!

The lever system moves very easily, therefore strength is not required here. When you note that the hook is clamped, but the lever won't move regardless, there could be many different reasons for this.

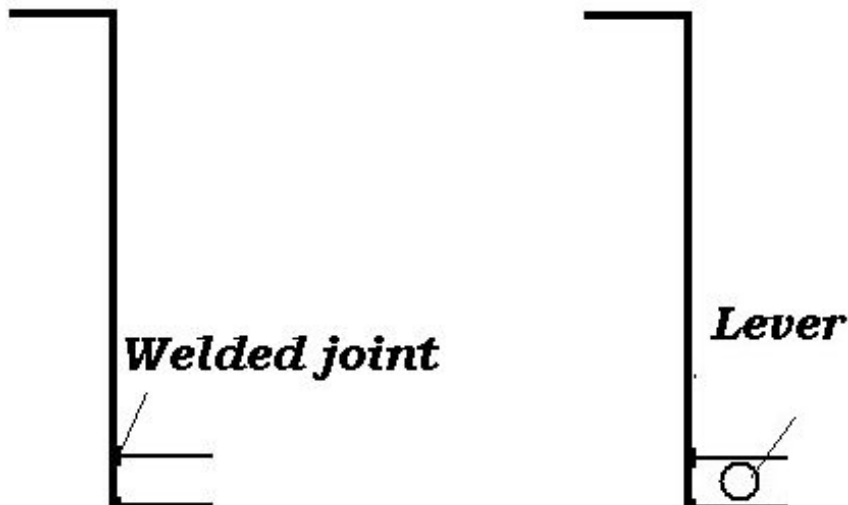
The most probable is that you have landed on the wrong rod. You have to unclamp the hook and begin anew. Another hindrance is that you have clamped the protective casing and are trying to move this. You need to just release a little of the clamp action and glide over the protection hull until you have found a hole.

When you are sure that it is the correct lever and it still doesn't move, then perhaps the hook is hitting interference. Release a little of the clamping, move the hook and position the tool anew.

What miracles can occur when you simply angle the tool and rattle a little with feeling!

It can also go easily:

With some levers, it's easy to move the locking lever with a very simple clamping tool.



A simple, but effective tool

A steel pipe with two thin, iron pegs welded on can be quickly made.

Insert the tool in the gap until it is at the level of the levers. With a quarter turn, “capture” the lever. Now you just need to tilt the tool to clamp it in place. The lever allows itself to be moved easily.

Bend up the ends!

In order to make capture of the levers easier, it is very much to your advantage to bend up the ends like a horn. You will connect much easier.

This system functions, of course, by vertical locking systems as well. The tool must simply be bent differently.

Under the window

This is a good idea, but it requires a lot of luck to carry out. A strong steel wire will be bent so that it can be worked under the window and then back up and out again on the inside of the car. The hook can then lift the door handle or push the electric lock button or even pull up the knob...

Procedure:

Enlarge the space between the window and door with a wedge. Insert the tool until the upper bend is somewhat lower than the lower window edge. Now finely rotate the hook and pull it back upwards until the bend is visible at the trim of the inner side of the window. If you remove the wedge, then the tension will give and the hook will be much easier to lift through the narrow window crack. It's not easy to pull this tool entirely through. It will usually last longer than you will want and move only millimeter by millimeter. Constant shaking and angling will make this hard work easier.

If the hook has worked its way entirely onto the inner side of the window and out, then manipulate the correct lever by the door handle and unlock the door. It will make the work much easier if you have inserted the tool in the correct place because it is so difficult to move anywhere. The height of the inner handle is a good exit location.

To remove the tool is very difficult and usually not worth it. You could damage too much or get irreparably stuck. The door must be taken completely apart in order to remove the hook.

Nip the hook back in and remove it very carefully from outside without pulling quickly or violently. You have to live with the damages.

Trunk

Sometimes it happens that one lays the key in the trunk and closes it. There are a few options to solve this irreversible misfortune without causing great damage.

Examine your options cool-headedly and calmly; panic will not help you at all in this situation.

Try to unlock the trunk if you are trained with picks. If you are not in practice with picking or raking, then there are many other ways.

If the car is unlocked, then open it to access the passenger area. Most cars have a lever which will mechanically open the trunk from inside. If there is no lever available, your chances to open the trunk from inside the car are still high.

Can the rear seats be uninstalled?

That is the easiest way to the resting key.

Often even if the seats aren't meant to be uninstalled, they are not very well secured. Perhaps you can even see the bolts and can unscrew these.

Other possibilities would be to unscrew the third brake light, demount the first aid kit, remove the headrests, or to light the trunk through the ski sack and fish out the key with a wire hook.

It is also worth considering drilling a hole in the back shelf; it can be cheaply repaired with a piece of felt.

Be careful with electric activities!

One should understand auto electric systems before proceeding with the following method, or else your work can come to a quick end with much damage.

If the lock is electric, then you can pull the lever as much as you want, and without ignition, it won't do anything.

With a long piece of cable, a contact can be created. Carefully demount the locking knob of the trunk. This is usually just stuck on. With a screwdriver, you can easily lift up the dashboard. Make sure that you don't rip any cables and that the connection points lay free. Now attach the cable to the positive pole of the battery. Be particularly careful that you don't touch anything with the other end. If you touch the correct locking system connection point with the cable end, the trunk will spring open; if you touch the incorrect, nothing will happen. You just need to make contact and should never make a longer electrical connection than necessary. Get your key, disconnect the cable, and refasten the knob.

Difficult but necessary

This isn't the easiest way to open a trunk, but in many cases it is the only option. You need a long metal rod on the end of which a nut is

attached. Some roadside assistance employees or locksmiths will carry this along with them. The nut should be attached to a square-end in order to easily change its size.

If your car doesn't have a locking knob in the passenger area, there is still the possibility to unscrew the trunk lock. Carefully remove the rear seats. If there is a hole in the shield, you can use that.

If there is no opening, then you must drill one. First, light up the inside of the trunk to try and see the key, and determine if you could fish it out with a wire.

If there is no key to be found, then the prepared metal rod enters the picture. The opening to the trunk must be large enough that the nut can pass through. Whether you need to drill a second hole or you can see through the first one well enough remains your choice. However, one hole can prove to be enough if the metal rod is clearly smaller in diameter than the nut. Then there will be enough space to light through as well as see.

Demounting the signal lights

Sometimes it is possible to demount the signal lights and there is then a small hole underneath. Through this opening, you have the long-shot of being able to fish out the car keys with a wire. Patience is, of course, required.

With convertibles, it is very hard to open the trunks, because they are always particularly protected. Your best chances for success are with picking or test keys (Jiggling).

Breaking a Window

This is the absolutely last option which you should consider. Think twice before choosing this direction. It is always cheaper to call a professional locksmith than to destroy a window. If you have absolutely no other possibility, then break in through the window on the passenger's side. It is the easiest to replace and it costs less than an unmovable one. It is wrong to destroy the smallest window because it isn't the cheapest.

Don't hurt yourself while breaking it!

The windows of very expensive cars can be difficult to break even with a hammer. There are some tools which have been created for this purpose which use spring force in order to accomplish this job.

Tools

The ideal tools are those with which you can work the best. You can purchase almost every tool in a store at industrially-produced quality levels. However, these gadgets will cost a lot of money and the majority of handworkers prefer using self-made tools. No one knows your hands better than yourself, and therefore you can also make your own wires and rakes. You will save money and will have custom-made tools fit perfectly for yourself, if you choose this direction. Each tool will be a specially-made product which will bring you joy as it rests in your hand. You should pay careful attention to the process, because without good tools it is impossible to complete successful work.

The usage of a quickly unbent bobby pin to open a complicated cylinder lock is a thing of fairytales.

Tools for Picking:

There is a wide palette of tools for picking available at your disposal.

What you must pay attention to:

Every component and each detail is of the greatest importance in the manufacturing or usage of picks. A comfortable handle is important so that the tool can sit well in the hand. The neck must be long enough to reach the last tumbler without resting on it. It must be small enough to not touch the pins, but it can't be too thin or else it will spring too much and not give you accurate readings on what is occurring. The most important thing above all is the point. It glides over the pins and receives the important information.

You can make picks out of various raw materials. In the experience of the author, the ideal materials are tension bands, like those used to secure goods to palettes. The width should be between .3 and .5 mm. You can find these in every do-it-yourself store (sometimes also for free). You can make almost every tool that you need for picking out of this material. You must have a base knowledge of sanding and bending as well as good luck. It won't be possible for you to make a perfect tool on the first try. You should have some practical experience with a grinding wheel and files.

There are other things which can also be used as raw material. From knives (kitchen knives), one can also make very good picking tools. Naturally, you can also purchase spring steel from an iron works or from a locksmith.

Warning!

Tension bands are very hard and cannot be used with a key cutting machine, or else you will immediately damage the machine!

Construction of a Pick: (Diamond Pick)

Take a piece of spring steel and clean it with a wire brush, sand paper, or steel wool. Hold the tool at a 45° angle from the grinding disc and lay it on the grinding table, if there is one available, to form the point. Every time you sand down, remove only a little so that you don't overheat the material. You must always cool between sanding by dunking the steel into cold water. It is important that the tool doesn't become blue or else it will become melted and weak.

The next step is to sand the back angle. Hold the piece of steel to the sharp edge of the grinding wheel and sand the rear angle with the flat side. The point can't be free or else it will vibrate and break off. Therefore, use pliers and hold the point. It's because the grinding wheel has an additional support on the flat side of the disc.

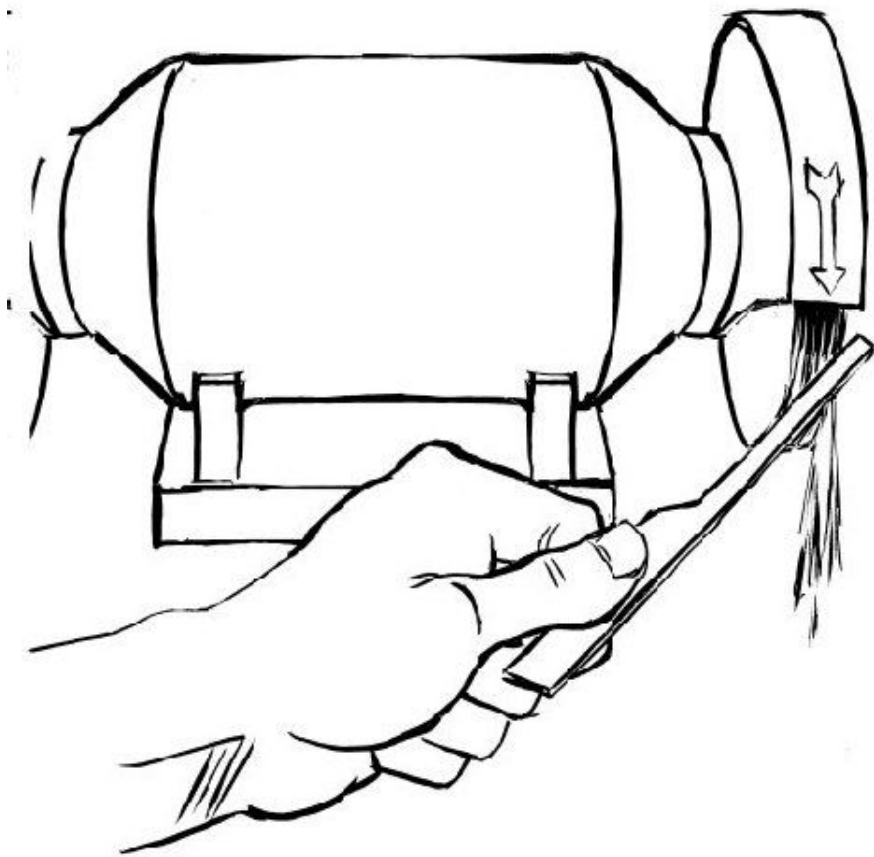
You are grinding a groove into the steel band of about a third of the width. When you have finished with the groove, then it's time for the neck. This work is wonderfully completed with the edge of the disc. As already stated, the length of the neck is important. Because cylinder locks can have up to 7 tumblers, it must be able to reach the last without catching on any of the earlier ones. At this location, make a mark (cleft). A neck length of about 30-35 mm is a good amount. You must sand with moderate pressure from the groove to the mark in order to work out the neck. The tool lies on the table and is held by two or three fingers. With the other hand, you moderate the pace. Continue to make sure that you only remove small amounts of material at a time so that the metal doesn't become blue.

It is important to state again that the space between the grinding wheel and table should be as close as possible, because otherwise the tool could be ripped away and you could be gravely injured.

The sides and edges are very raw and sharp-edged from sanding. You can remove these ridges with a file.

Now your new pick just needs a handle. A piece of cable of the correct diameter which has space for the metal to be inserted is a possibility.

You could also wrap your pick with an insulating band (plastic or fabric). Thin hosing does the job as well. The disadvantage of a plastic grip is that it will absorb the very small movements of the tumblers.



Professional Handle:

A hard handle has the advantage that no small movement or vibration will be absorbed, but rather will be transmitted directly and accurately to your hand.

An ideal solution is to mount a real metal handle the way the industrial picks have them. It sounds like a lot of work, but it's not. You just need two metal lengths of equal length and width to create your desired handle. Lay these over the handle of the pick and drill a hole through all three pieces in one movement. Two holes, one on each end of the handle, will be enough. When drilling, make absolutely sure that the tool is secured in a vice or else you can be injured when the drill begins and the tool turns with it. To prevent damaging the vice or the table, lay a piece of wood underneath the tool. To make sure that the pieces lay nicely on top of one another, file away the ridges. Afterwards, rivet all three metal pieces together

and break the edges with the hand file. Now a little detail work with an emery cloth and a good pick is finished.

If you don't want metal, then a wooden handle is a good alternative. Hard wood is absolutely preferable. You can purchase such wooden handles in every hardware store or make your own of sandwich construction. Instead of riveting, screw.

Possible forms of picks are described in the chapter <Cylinder locks>.

Extractor out of saw blade

You can make a great extractor from the saw blade of a small metal saw. An easily avoided error which is frequently made: The teeth point forwards and can't really hook on. So pay attention that the teeth point backwards.

A leaf saw blade works particularly well for extracting.

The favorite under the extractor:

With the security of the best extractor, you can make a thin spring steel wire.

You bend one end of the wire into a U and forge it entirely together. There should be no space between the ends.

As a next step, sever the ends shortly after bending with the grinding wheel so that it is a type of sharp hook. Forge the hook somewhat flatter and sand off the rounded parts which are there from the hammer work. Now you have a good and valuable tool.

On the handle side, lay a loop. This way you can pull on it with one or two fingers. Make sure that the loop lies correctly to avoid a "lasso effect." You have to wrap the long end of the wire around the short and not vice versa. In this way, the loop cannot close. Otherwise, it will squeeze the fingers.

Opening Needle (Wire)

The wire hook is the most important tool used to open closed-over doors. Therefore, you should be just as diligent with its construction. Various bended forms are known, but one type has, in the mind of the author, been particularly time-tested. The wire is particularly easy to handle if it looks like a Z.

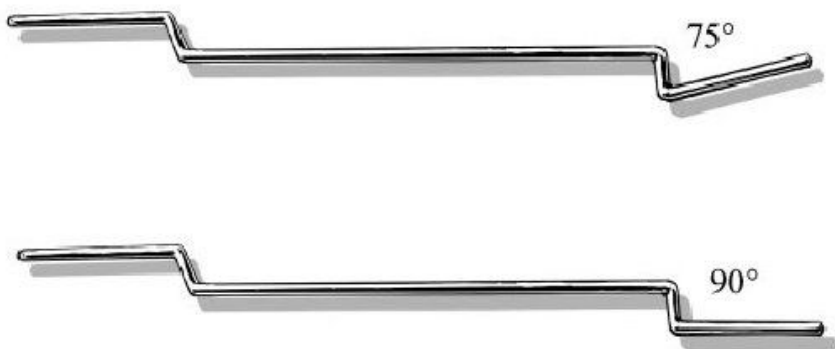
The pieces should be variably sized in order to save space in the tool box and to be able to be used in more situations. It is good if the hooks are of various diameters in order to avoid difficulties. Normally, a diameter of 2-3 millimeters is most effective. However, you will appreciate it when you have a needle at your disposal with only a 1 mm diameter in an emergency situation.

The material and quality of the wire is crucial. Principally, spring steel should be used. The best choice, however, is clamp strap, which is unfortunately very difficult to obtain. It is rust-free, extremely hard, and doesn't warp. A well-assembled rake is a good worker for many years.

Introduction to forgery:

In order to make a rake correctly resistant, it must be forged. You don't need to heat the steel; it is enough when you forge it cold. In fact, spring steel will lose its characteristics when melted. You bend the pieces with a vice at a sharp angle. Then you lay the tool on an anvil (or something similar) and elongate the wire with light hammering on the corner until it has reached 90° and the round steel has been hammered somewhat flat.

In this way, the material will be compressed and practically immunized to warping. With a wire that has been constructed in such a way, you will be able to push back even difficult safety catches.



Very good wire tools can be made from the springs of a key pocket. These small retractable pockets are what are meant here, which go back and forth with finger pressure. You merely must weave out the hard wire and bend it correctly in a vice. Unfortunately these springs are very short and are therefore difficult to hold.

Good luck!

Yours Michael